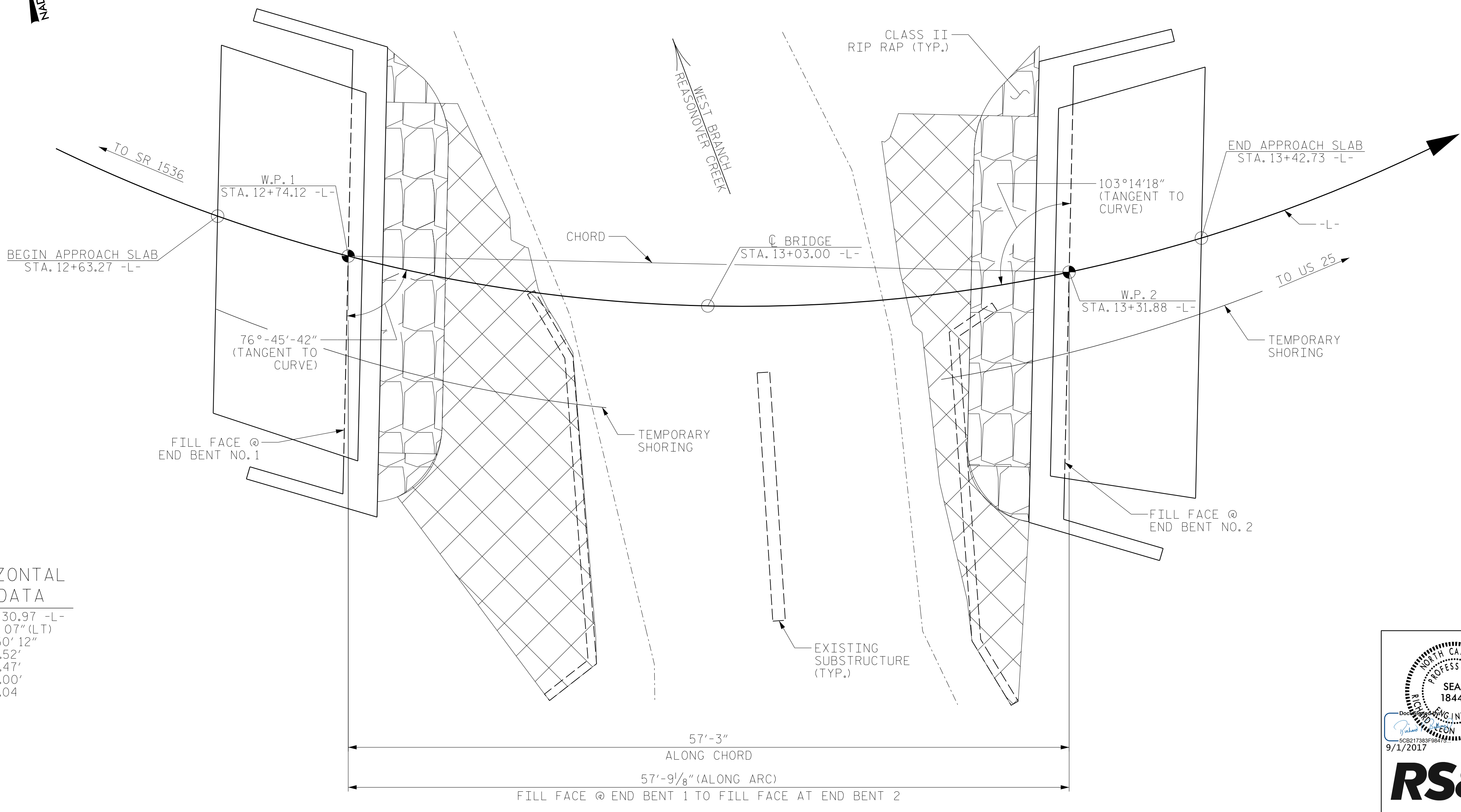
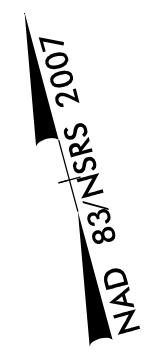
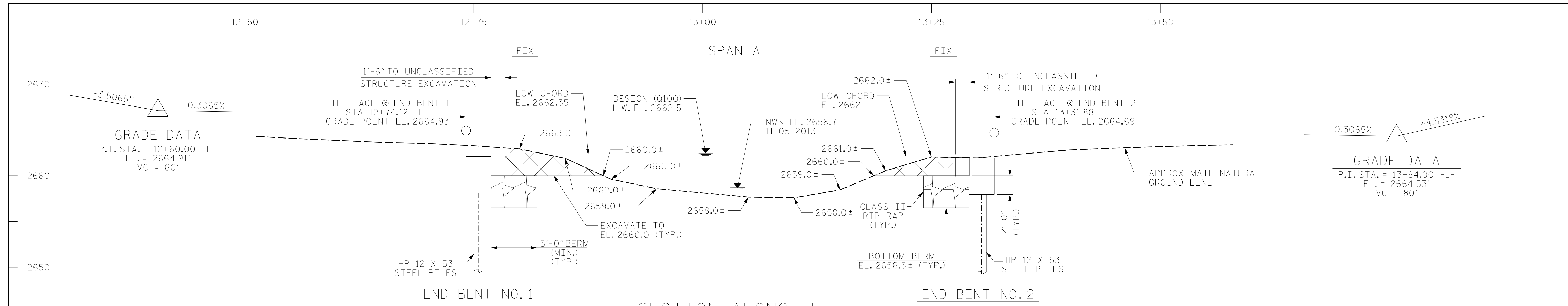


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shall not be considered a certified document.**



**-L- HORIZONTAL CURVE DATA**  
P.I. STA. = 13+30.97 -L-  
 $\Delta = 85^\circ 57' 07''$  (LT)  
D = 45° 50' 12"  
L = 187.52'  
T = 116.47'  
R = 125.00'  
SE = 0.04

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

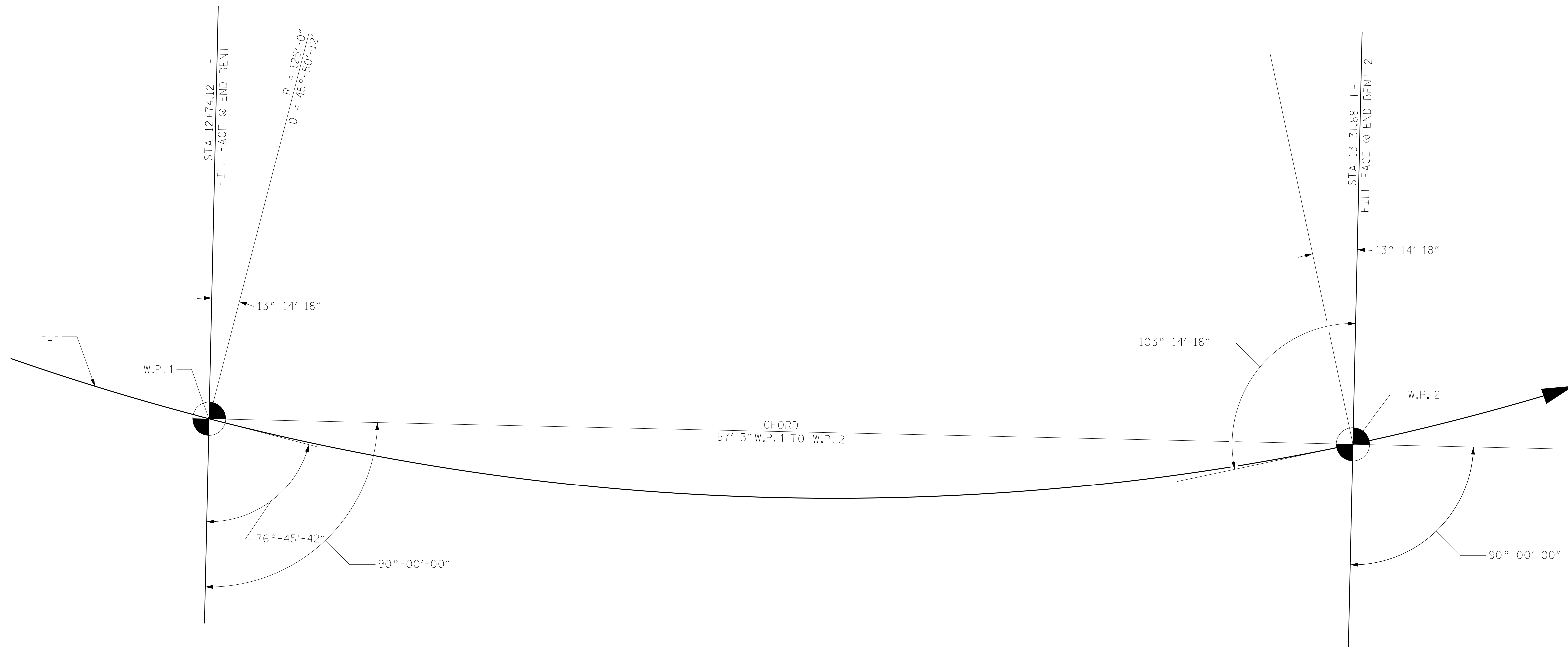
SHEET 1 OF 3 REPLACES BRIDGE NO. 9

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www.rsandh.com  
North Carolina License No. 50737-F-0403-C-28

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE OVER WEST BRANCH REASONOVER CREEK ON SR 1560 BETWEEN SR 1536 AND US 25					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	PDS	08/2017	3		
2			4		
					SHEET NO. S-1
					TOTAL SHEETS 21

DRAWN BY : TRP DATE : 04/2014  
CHECKED BY : JMR DATE : 04/2014  
DESIGN ENGINEER OF RECORD : JMR DATE : 04/2014

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CHORD LAYOUT  
NOTE: END BENTS ARE PARALLEL

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

SHEET 2 OF 3

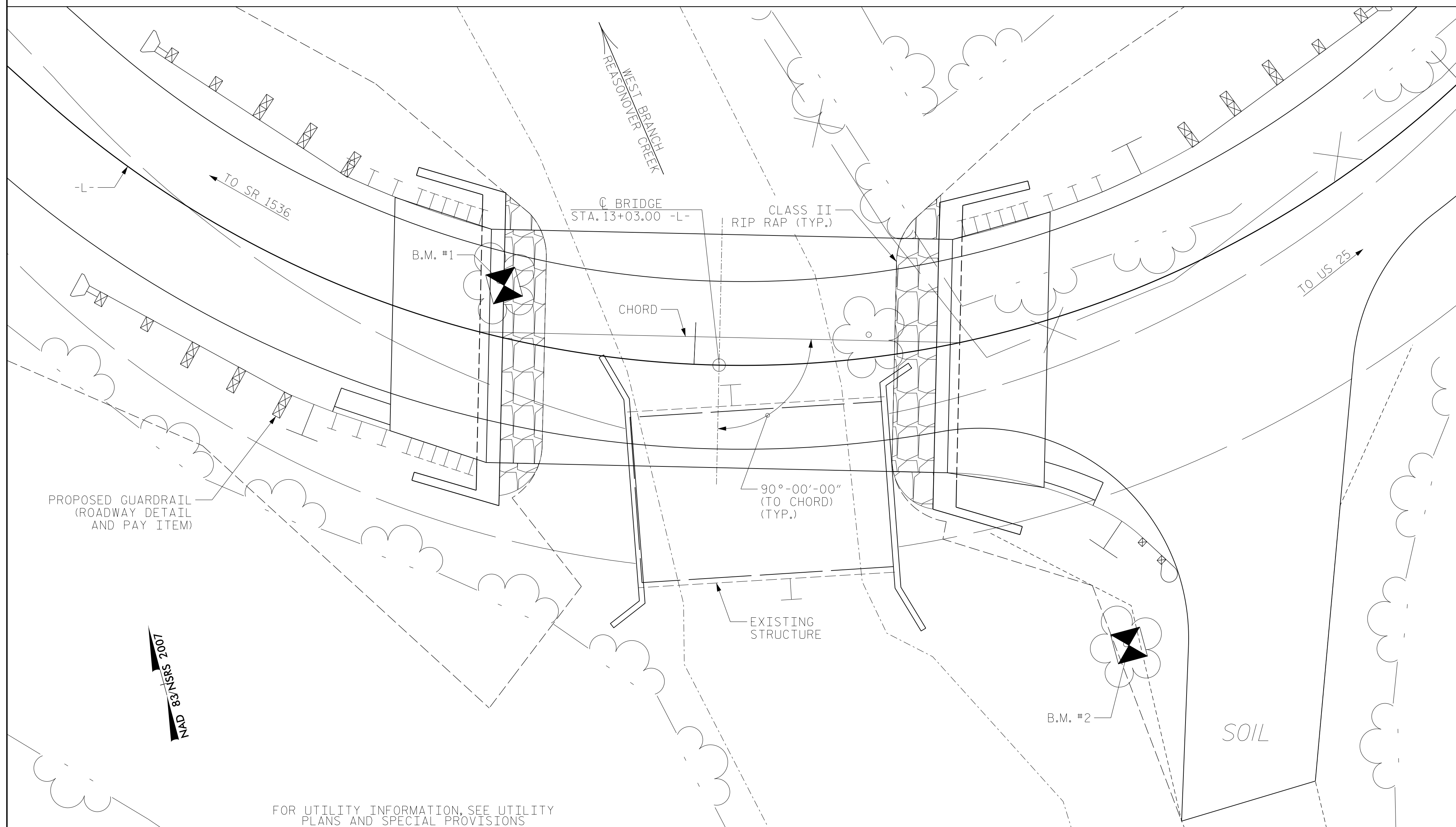
DRAWN BY : TRP DATE : 03/2014  
CHECKED BY : JMR DATE : 04/2014  
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
GENERAL DRAWING					
FOR BRIDGE OVER WEST BRANCH REASONOVER CREEK ON SR 1560 BETWEEN SR 1536 AND US 25					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	PDS	08/2017	3		
2			4		
SHEET NO.					S-2
TOTAL SHEETS					21

BENCHMARK: BM #1, SPIKE IN BASE OF 26" WHITE PINE 6.08' LT. OF STA. 12+75.63 -L- EL. 2663.56'; BM #2, SPIKE IN BASE OF 6" DOUBLE CHERRY 39.97' RT. OF STA. 13+41.19 -L- EL. 2663.09'



FOR UTILITY INFORMATION SEE UTILITY PLANS AND SPECIAL PROVISIONS

LOCATION SKETCH

NOTES:

- THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
- ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
- THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.
- FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
- FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.
- FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.
- FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.
- FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.
- FOR ASBESTOS ASSESSMENT, SEE SPECIAL PROVISIONS.
- FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
- THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA ON SHEET 1 OF 3 SHALL BE EXCAVATED FOR A DISTANCE OF 12 FT LEFT AND 36 FT RIGHT OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.
- FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.
- AFTER SERVING AS A TEMPORARY STRUCTURE, THE EXISTING STRUCTURE CONSISTING OF ONE 15'-1" SPAN AND ONE 15'-6" SPAN, ON A TIMBER DECK ON TEN STEEL I-BEAMS, ON A TIMBER CAP WITH TIMBER PILE AND TIMBER END BENTS WITH A CLEAR ROADWAY WIDTH OF 19'-7" LOCATED UPSTREAM FROM THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT.
- THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE, SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.
- REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
- INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+03.00 -L-".
- ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.
- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18 - EVALUATING SCOUR AT BRIDGES."

HYDRAULIC DATA

DESIGN DISCHARGE	= 600 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS
DESIGN HIGH WATER ELEVATION	= 2662.3
DRAINAGE AREA	= 1.73 SQ. MI.
BASE DISCHARGE (Q100)	= 850 CFS
BASE HIGH WATER ELEVATION	= 2662.46

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 1560 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 100 YRS+
OVERTOPPING FLOOD ELEVATION	= 2664.7

TOTAL BILL OF MATERIALS

	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	PILE DRIVING EQUIPMENT SETUP	HP 12 X 53 STEEL PILES		STEEL PILE POINTS	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (3'-6" THICK)	GEOTEXTILE FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS		ASBESTOS ASSESSMENT
							NO.	LIN. FT.								NO.	LIN. FT.	
	LUMP SUM	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	NO.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	LUMP SUM
SUPERSTRUCTURE				LUMP SUM								110.0			LUMP SUM	10	550	LUMP SUM
END BENT 1		LUMP SUM	20.7		2505	5	5	75	5	15	15		38	42.2				
END BENT 2		LUMP SUM	20.7		2508	5	5	75	0	15	35		39	43.3				
TOTAL	LUMP SUM	LUMP SUM	41.4	LUMP SUM	5013	10	10	150	5	30	50	110.0	77	85.5	LUMP SUM	10	550	LUMP SUM

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-

SHEET 3 OF 3

FOUNDATION NOTES:

FOR PILES, SEE GEOTECHNICAL SPECIAL PROVISIONS AND SECTION 450 OF THE STANDARD SPECIFICATIONS

PILES AT END BENTS NO.1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 85 TONS PER PILE.

DRIVE PILES AT END BENTS NO.1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 145 TONS PER PILE.

STEEL H-PILE POINTS ARE REQUIRED FOR STEEL H-PILES AT END BENT NO.1, LEFT. FOR STEEL PILE POINTS, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

DRILLED-IN PILES ARE REQUIRED FOR END BENT NO.1, RIGHT. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 2648 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS

DRILLED-IN PILES ARE REQUIRED FOR END BENT NO.2, LEFT AND RIGHT. EXCAVATE HOLES AT PILE LOCATIONS TO ELEVATION 2648 FT. FOR PILE EXCAVATION, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

CONCRETE OR GROUT IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENTS NO.1 AND 2.

DRAWN BY : TRP DATE : 03/2014  
 CHECKED BY : JMR DATE : 04/2014  
 DESIGN ENGINEER OF RECORD : JMR DATE : 04/2014

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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING

FOR BRIDGE OVER WEST BRANCH REASONOVER CREEK ON SR 1560 BETWEEN SR 1536 AND US 25

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-3
1	PDS	08/2017	3			TOTAL SHEETS
2			4			21

## LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER			
						MOMENT					SHEAR					MOMENT								
						LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING	HL-93(Inv)	N/A	<b>1</b>	1.055	--	1.75	0.275	1.23	55'	EL	27	0.523	1.23	55'	EL	5.4	0.80	0.275	<b>1.05</b>	55'	EL	27		
	HL-93(Opr)	N/A	--	1.591	--	1.35	0.275	1.59	55'	EL	27	0.523	1.59	55'	EL	5.4	N/A	--	--	--	--	--		
	HS-20(Inv)	36.000	<b>2</b>	1.322	47.585	1.75	0.275	1.54	55'	EL	27	0.523	1.47	55'	EL	5.4	0.80	0.275	<b>1.32</b>	55'	EL	27		
	HS-20(Opr)	36.000	--	1.9	68.396	1.35	0.275	1.99	55'	EL	27	0.523	1.9	55'	EL	5.4	N/A	--	--	--	--	--		
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.776	37.476	1.4	0.275	4.04	55'	EL	27	0.523	4.17	55'	EL	5.4	0.80	0.275	2.78	55'	EL	27	
		SNGARBS2	20.000	--	2.155	43.095	1.4	0.275	3.14	55'	EL	27	0.523	3.02	55'	EL	5.4	0.80	0.275	2.15	55'	EL	27	
		SNAGRIS2	22.000	--	2.079	45.734	1.4	0.275	3.03	55'	EL	27	0.523	2.83	55'	EL	5.4	0.80	0.275	2.08	55'	EL	27	
		SNCOTTS3	27.250	--	1.384	37.708	1.4	0.275	2.01	55'	EL	27	0.523	2.09	55'	EL	5.4	0.80	0.275	1.38	55'	EL	27	
		SNAGGRS4	34.925	--	1.189	41.527	1.4	0.275	1.73	55'	EL	27	0.523	1.77	55'	EL	5.4	0.80	0.275	1.19	55'	EL	27	
		SNS5A	35.550	--	1.16	41.255	1.4	0.275	1.69	55'	EL	27	0.523	1.82	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		SNS6A	39.950	--	1.079	43.102	1.4	0.275	1.57	55'	EL	27	0.523	1.68	55'	EL	5.4	0.80	0.275	1.08	55'	EL	27	
	TTST	SNS7B	42.000	--	1.028	43.175	1.4	0.275	1.5	55'	EL	27	0.523	1.67	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27	
		TNAGRIT3	33.000	--	1.32	43.556	1.4	0.275	1.92	55'	EL	27	0.523	1.98	55'	EL	5.4	0.80	0.275	1.32	55'	EL	27	
		TNT4A	33.075	--	1.33	43.979	1.4	0.275	1.94	55'	EL	27	0.523	1.91	55'	EL	5.4	0.80	0.275	1.33	55'	EL	27	
		TNT6A	41.600	--	1.101	45.811	1.4	0.275	1.6	55'	EL	27	0.523	1.83	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
		TNT7A	42.000	--	1.114	46.804	1.4	0.275	1.62	55'	EL	27	0.523	1.71	55'	EL	5.4	0.80	0.275	1.11	55'	EL	27	
		TNT7B	42.000	--	1.163	48.848	1.4	0.275	1.69	55'	EL	27	0.523	1.62	55'	EL	5.4	0.80	0.275	1.16	55'	EL	27	
		TNAGRIT4	43.000	--	1.101	47.33	1.4	0.275	1.6	55'	EL	27	0.523	1.56	55'	EL	5.4	0.80	0.275	1.10	55'	EL	27	
TNAGT5A	45.000	--	1.031	46.405	1.4	0.275	1.5	55'	EL	27	0.523	1.58	55'	EL	5.4	0.80	0.275	1.03	55'	EL	27			
TNAGT5B	45.000	<b>3</b>	1.013	45.582	1.4	0.275	1.47	55'	EL	27	0.523	1.48	55'	EL	5.4	0.80	0.275	<b>1.01</b>	55'	EL	27			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	$\gamma_{DC}$	$\gamma_{DW}$
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

- 1.
- 2.
- 3.
- 4.

# CONTROLLING LOAD RATING

1 DESIGN LOAD RATING (HL-93)

2 DESIGN LOAD RATING (HS-20)

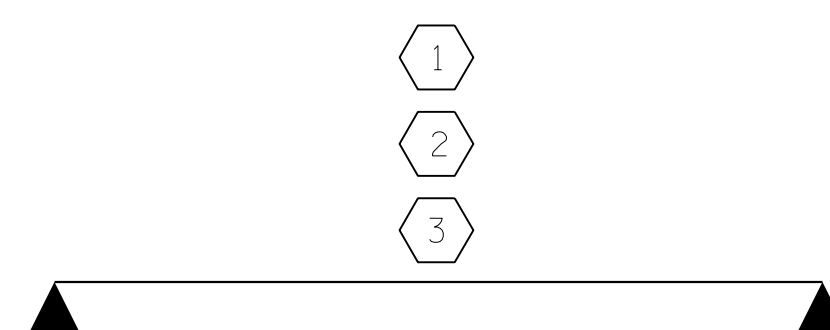
3 LEGAL LOAD RATING \*\*

\*\* SEE CHART FOR VEHICLE TYPE

---

GIRDER LOCATION

I - INTERIOR GIRDER  
EL - EXTERIOR LEFT GIRDER  
ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY  
FOR SPAN 'A'

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

ASSEMBLED BY : TRP	DATE : 04/2014
CHECKED BY : JMR	DATE : 05/2014
DRAWN BY : CVC 6/10	.
CHECKED BY : DNS 6/10	.

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SIGNATURES COMPLETED

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
LRFR SUMMARY FOR  
55' CORED SLAB UNIT  
90° SKEW  
(NON-INTERSTATE TRAFFIC)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			21

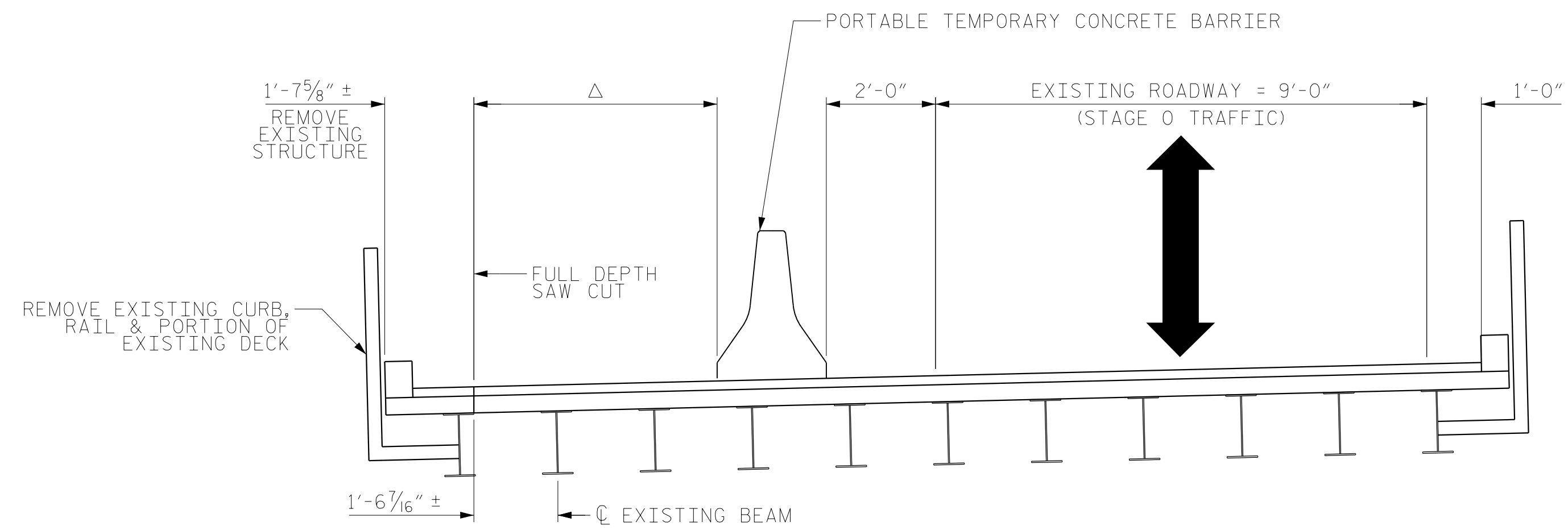
**NOTES:**

FOR TRAFFIC PHASING, SEE TRAFFIC CONTROL PLANS.

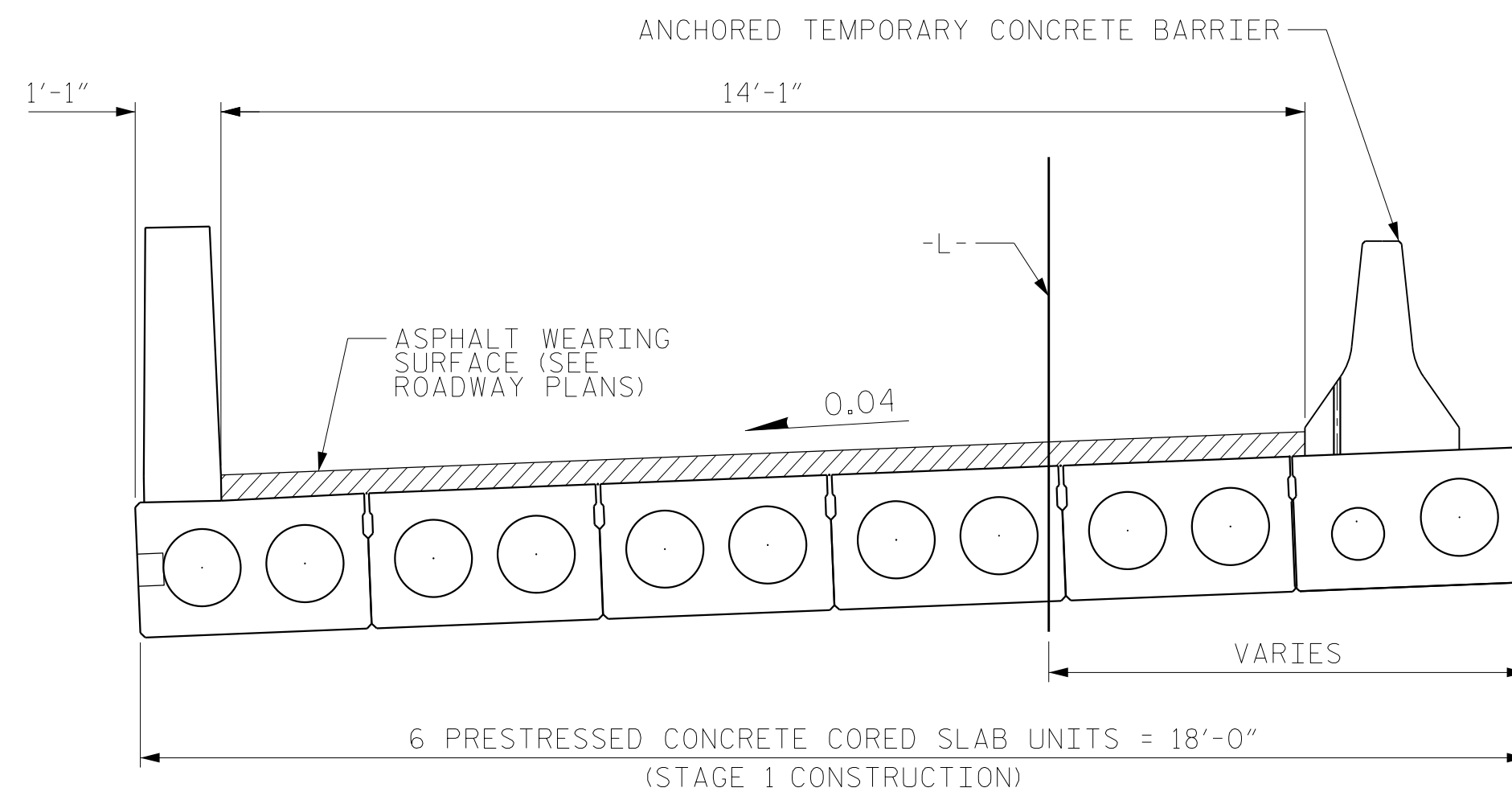
FOR STAGED CONSTRUCTION DETAILS, SEE ROADWAY PLANS.

THE TEMPORARY CONCRETE BARRIER USED IN STAGED CONSTRUCTION IS A ROADWAY DETAIL AND PAY ITEM.

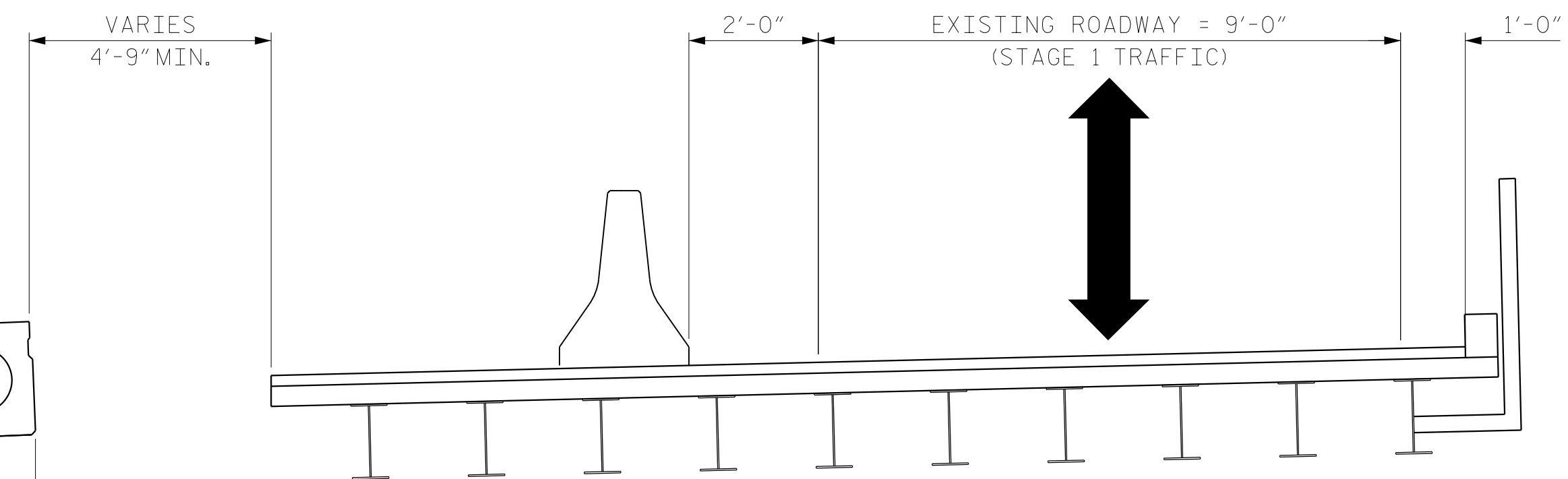
Δ SEE TRAFFIC CONTROL PLANS FOR LOCATION OF THE PORTABLE CONCRETE BARRIER.



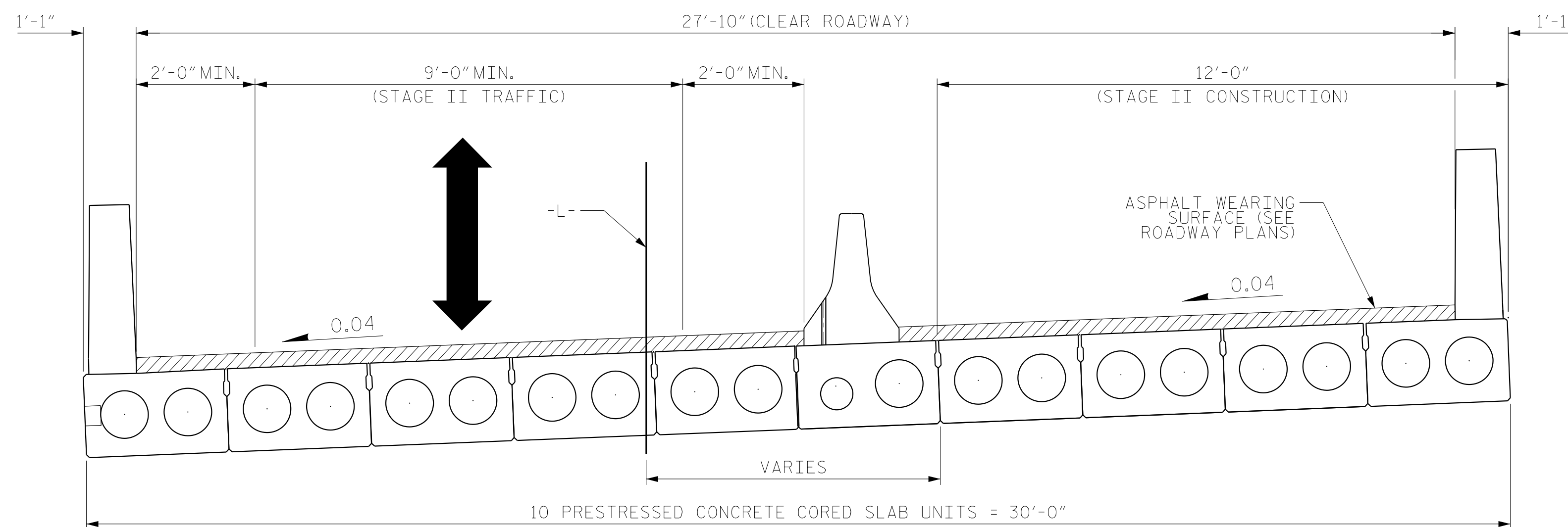
STAGE 0 CONSTRUCTION



STAGE 1 CONSTRUCTION



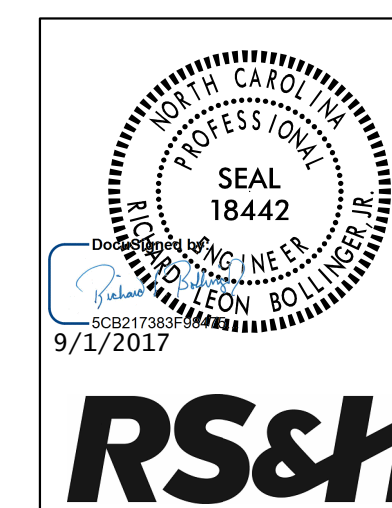
STAGE 1 TRAFFIC



STAGE 1 TRAFFIC

STAGE II CONSTRUCTION

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-

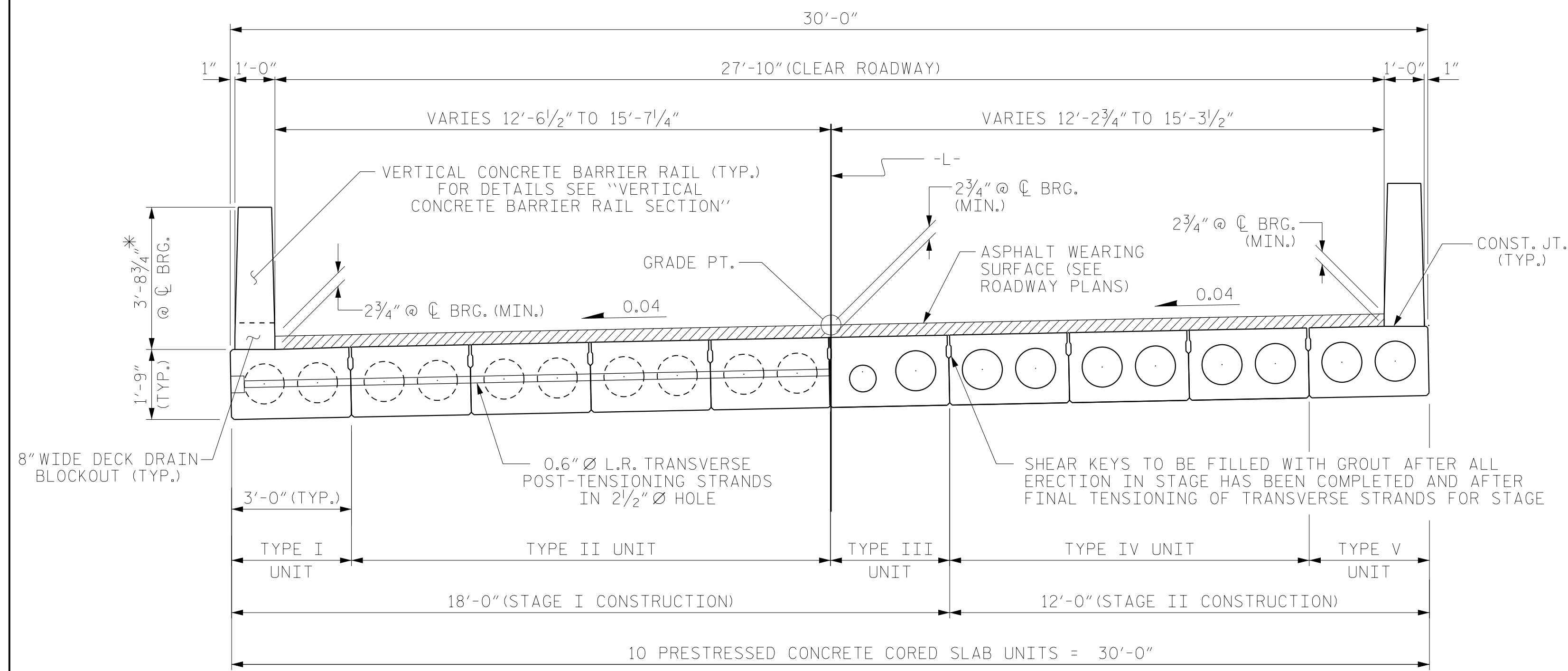


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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-5	
SUPERSTRUCTURE CONSTRUCTION SEQUENCE						TOTAL SHEETS 21	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

DRAWN BY : TRP DATE : 04/2014  
 CHECKED BY : JMR DATE : 05/2014  
 DESIGN ENGINEER OF RECORD : JMR DATE : 05/2014

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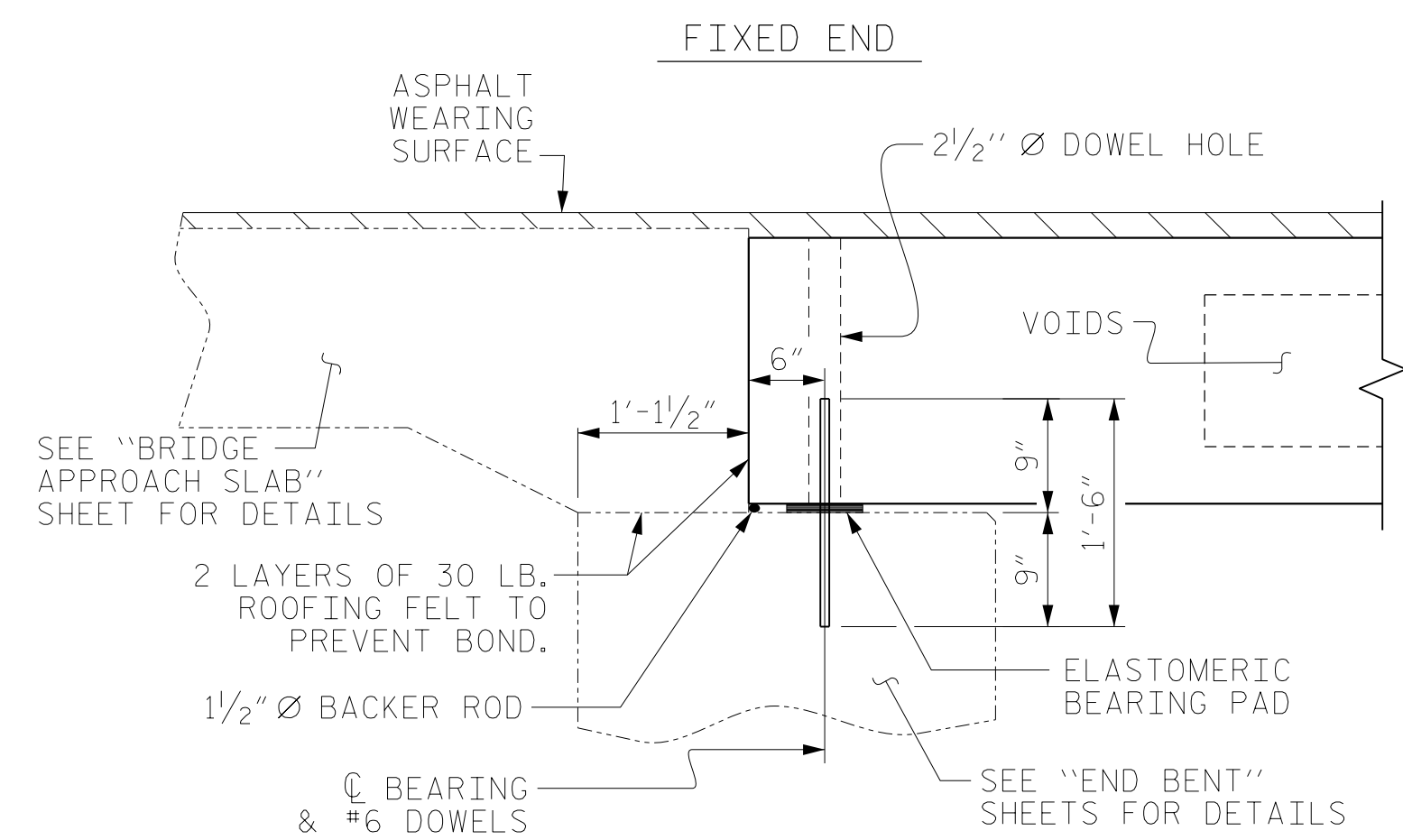


HALF SECTION AT INTERMEDIATE DIAPHRAGMS

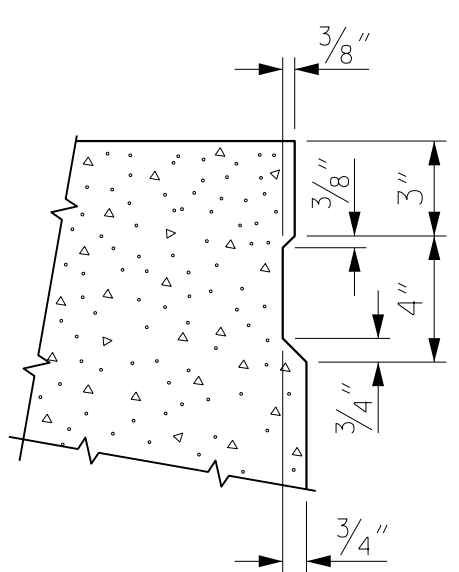
HALF SECTION THROUGH VOIDS

TYPICAL SECTION

\* - THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE CUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



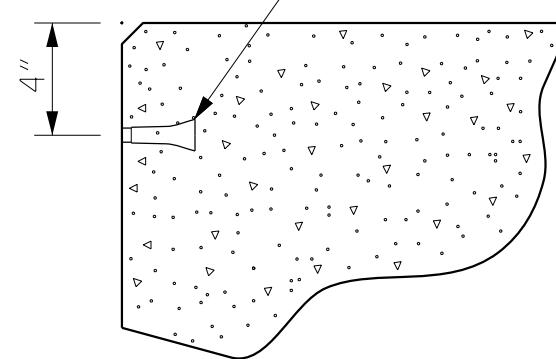
SECTION AT END BENT



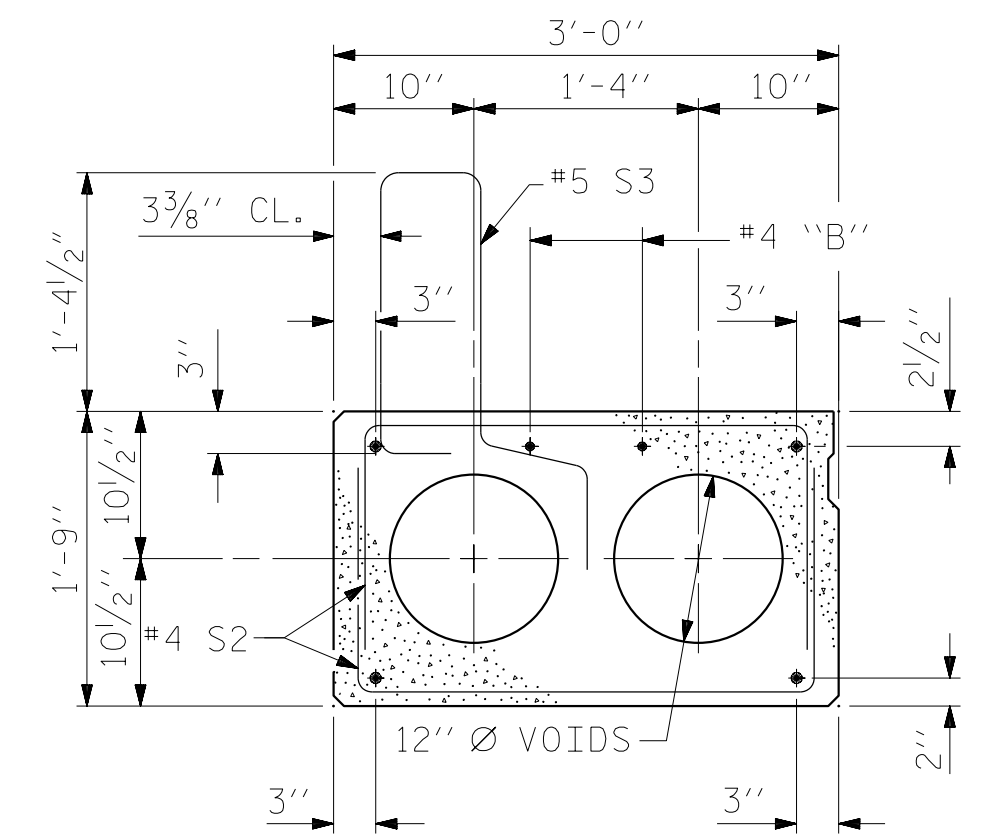
SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

PERMITTED THREADED INSERT CAST IN OUTSIDE FACE OF EXTERIOR UNIT AND RECESSED 3/8" SIZE TO BE DETERMINED BY CONTRACTOR.

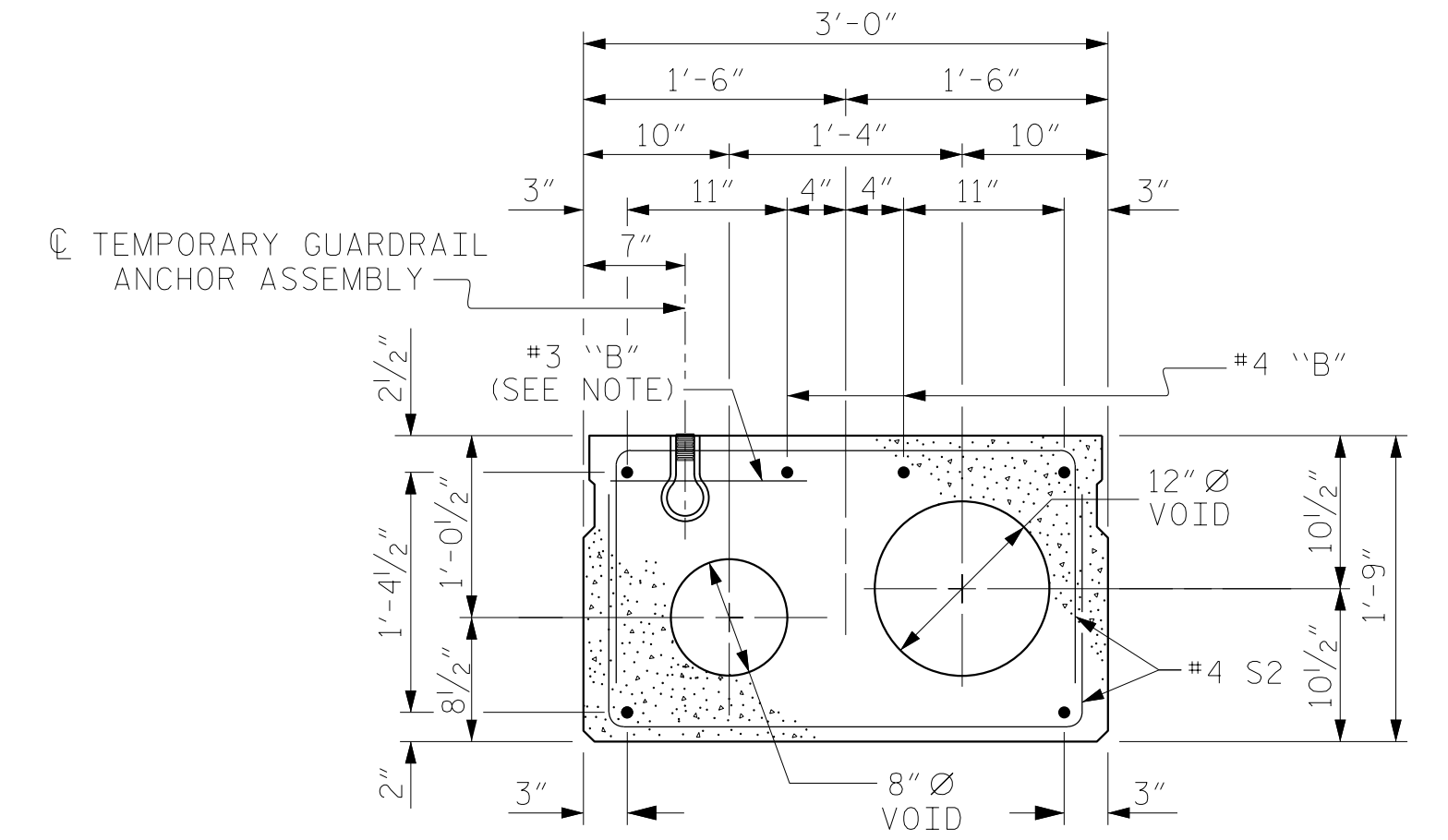


THREADED INSERT DETAIL



EXT. SLAB SECTION

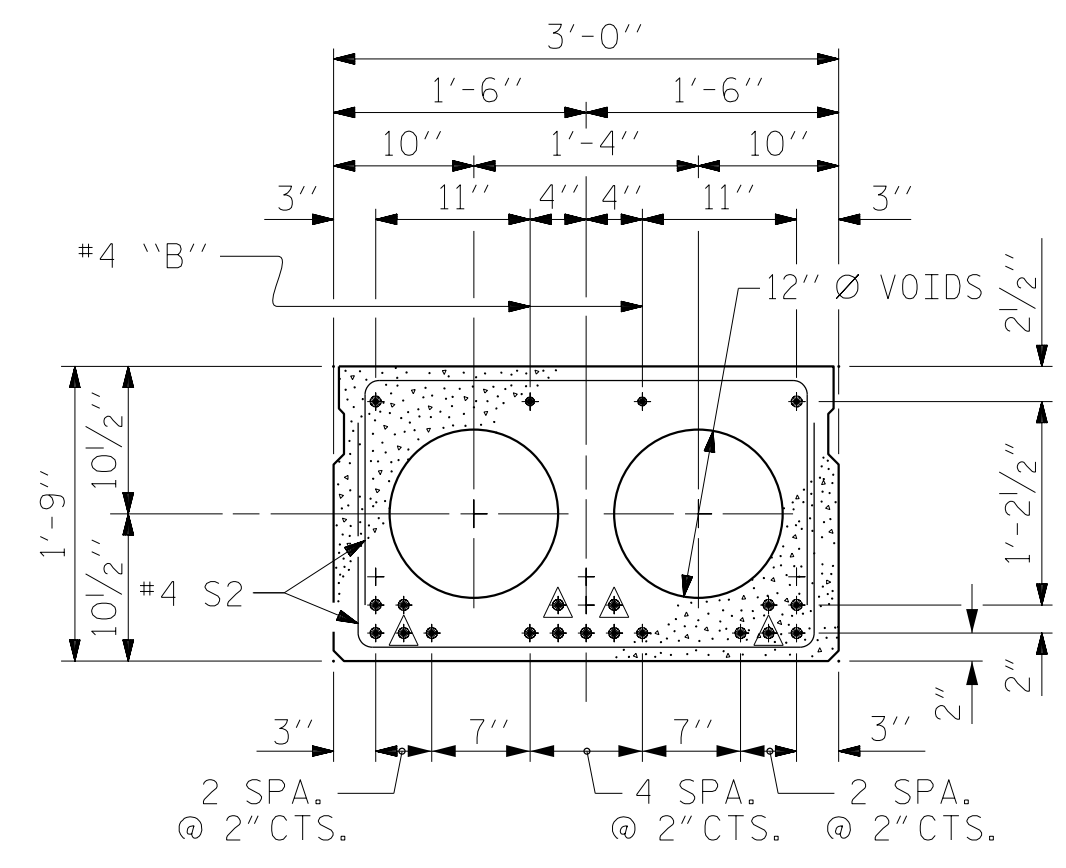
TYPE I & TYPE V (FOR PRESTRESSED STRAND LAYOUT, SEE "INTERIOR SLAB SECTION - TYPE II & IV")



INTERIOR SLAB SECTION

TYPE III (FOR PRESTRESSED STRAND LAYOUT, SEE "INTERIOR SLAB SECTION - TYPE II & IV")

NOTE: FOR LOCATION OF CONCRETE INSERTS, SEE "3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT DETAILS" SHEET 5 OF 6.



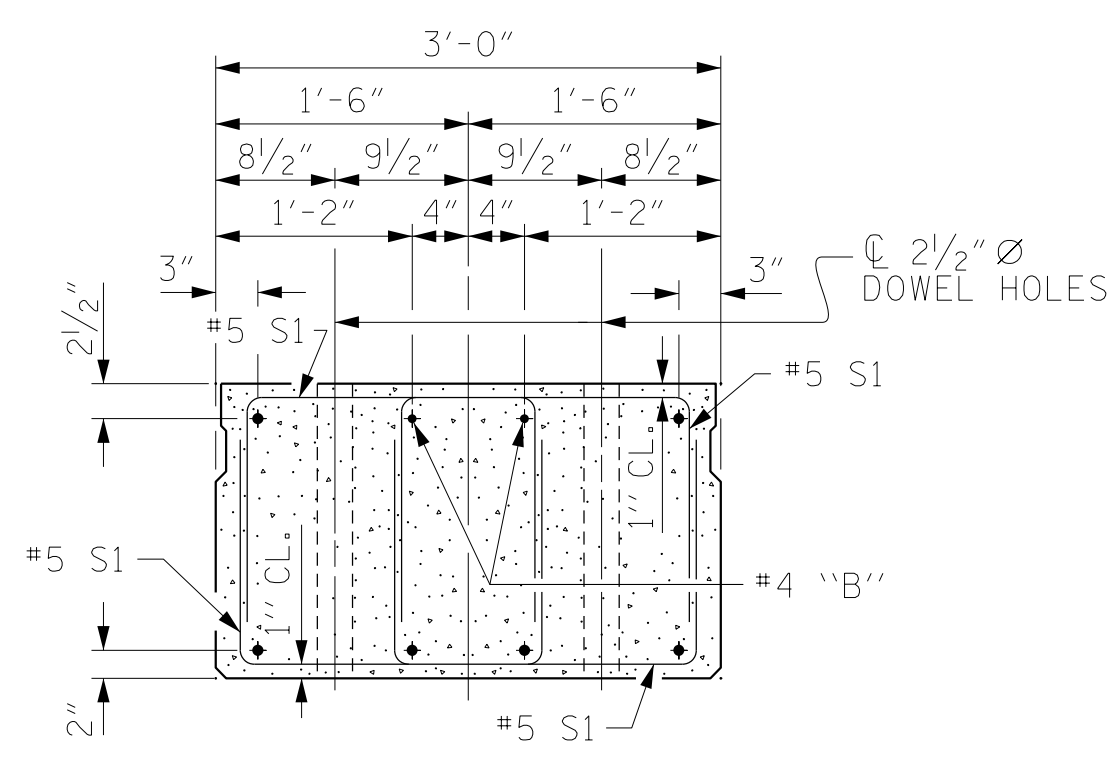
INTERIOR SLAB SECTION (55' UNIT)

TYPE II & TYPE IV (19 STRANDS REQUIRED)

0.6" Ø LOW RELAXATION STRAND LAYOUT

- ▲ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 6'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 2'-0" FROM END OF CORED SLAB UNIT. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.
- OPTIONAL FULL LENGTH DEBONDED STRANDS. THESE STRANDS ARE NOT REQUIRED, IF THE FABRICATOR CHOOSES TO INCLUDE THESE STRANDS IN THE CORED SLAB UNIT, THE STRANDS SHALL BE DEBONDED FOR THE FULL LENGTH OF THE UNIT AT NO ADDITIONAL COST. SEE STANDARD SPECIFICATIONS, ARTICLE 1078-7.

DEBONDING LEGEND



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-

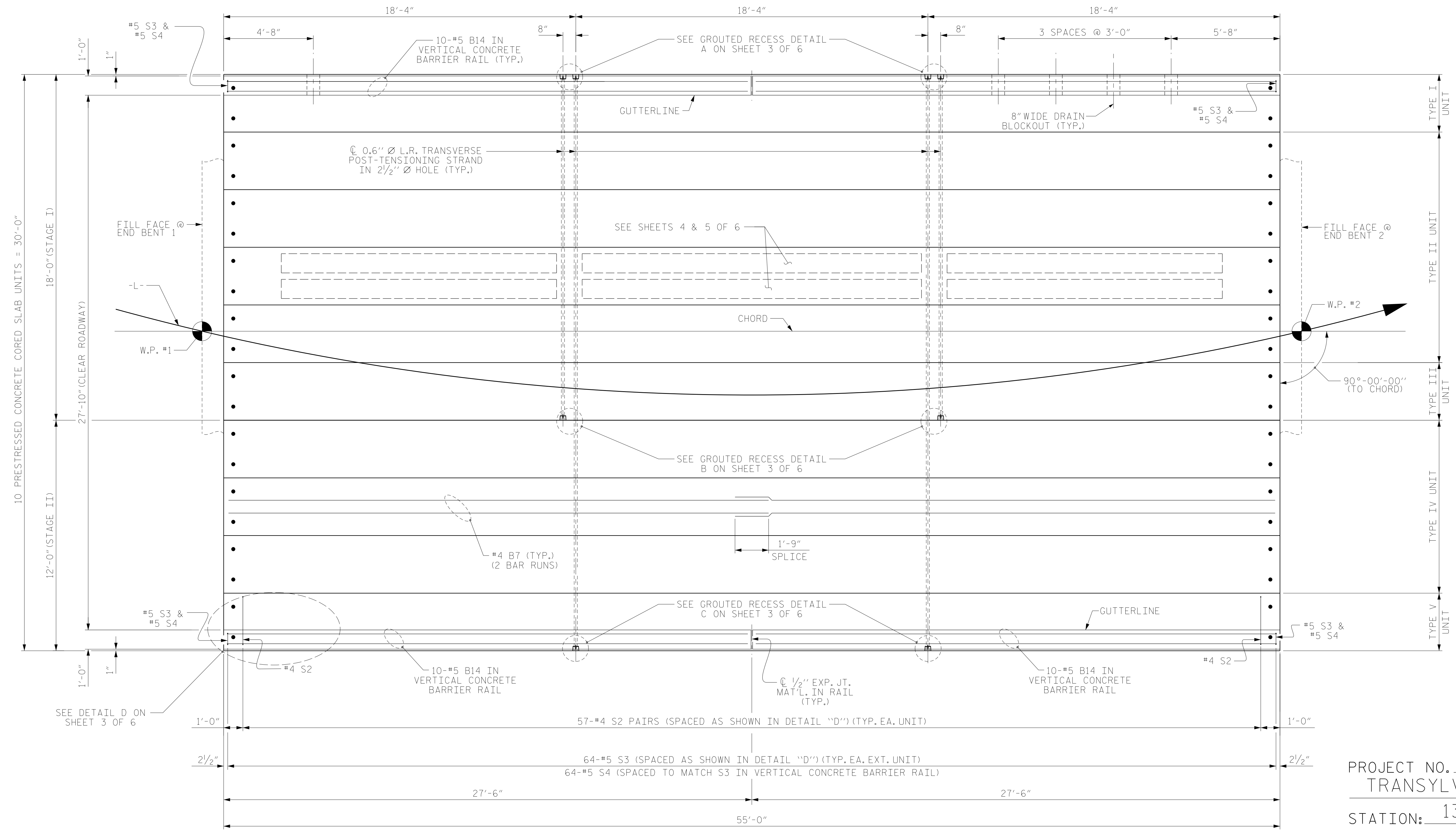
SHEET 1 OF 6

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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO.
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW						S-6
REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	21
1			3			
2			4			

ASSEMBLED BY :	TRP	DATE :	04/2014
CHECKED BY :	JMR	DATE :	05/2014
DRAWN BY :	DGE	5/09	REV. 12/11
CHECKED BY :	BCH	6/09	REV. 8/14
			MAA/AAC
			MAA/TMG

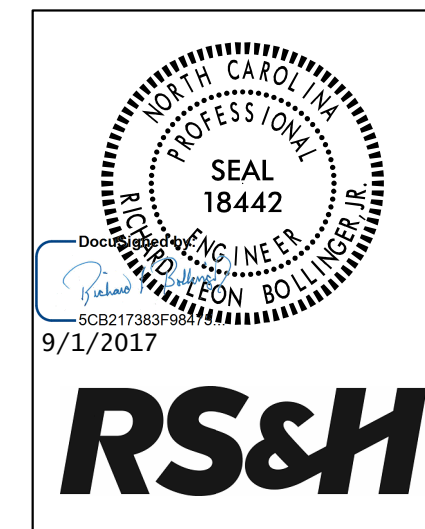
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLAN OF SPAN A

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-

SHEET 2 OF 6



STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 PLAN OF 55' UNIT  
 27'-10" CLEAR ROADWAY  
 90° SKEW

ASSEMBLED BY :	TRP	DATE :	04/2014
CHECKED BY :	JMR	DATE :	05/2014
DRAWN BY :	DGE 3/09	REV. 12/5/11	MAA/AAC
CHECKED BY :	BCH 3/09	REV. 8/14	MAA/TMG

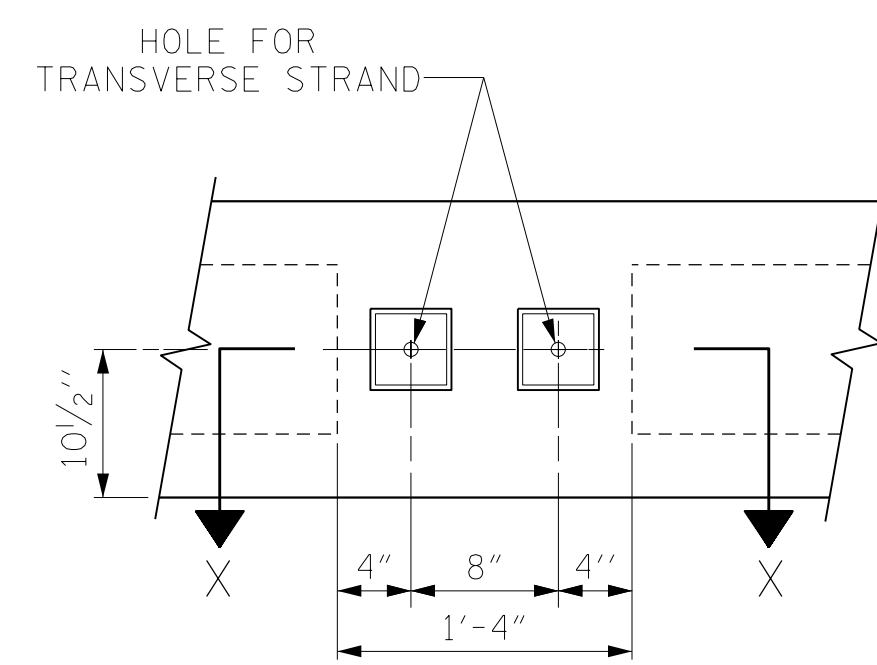
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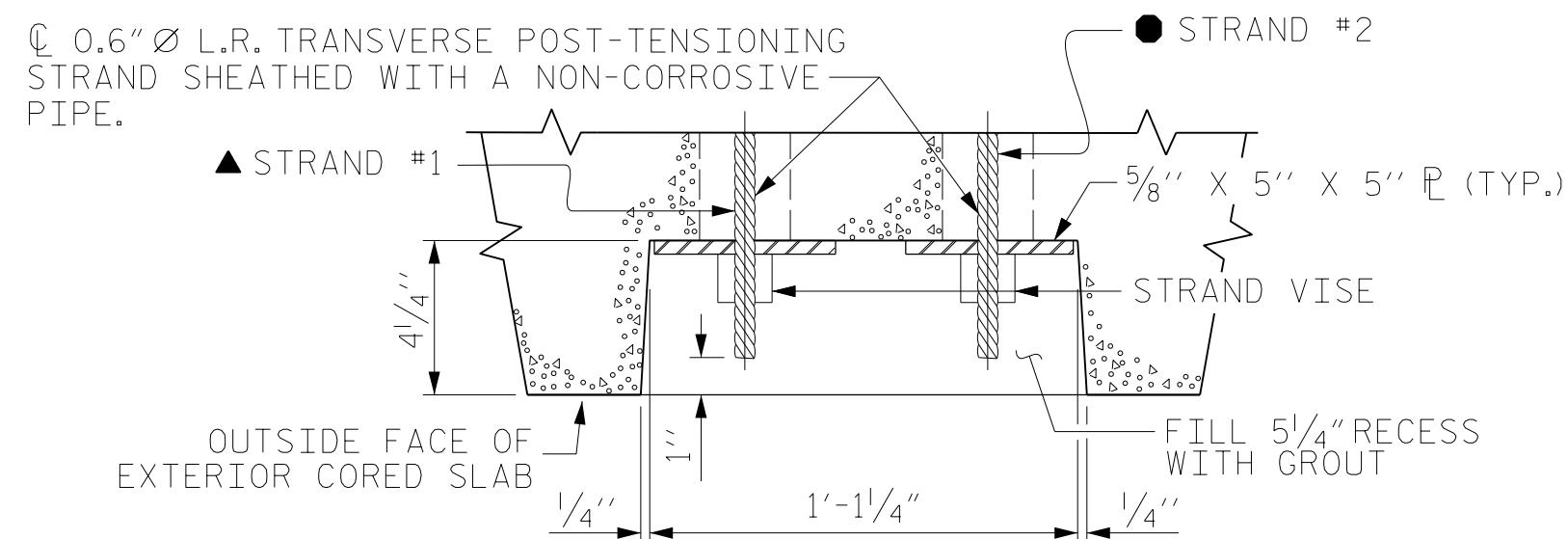
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1	PDS	08/2017	3			TOTAL SHEETS
2			4			21

STD. NO. 21" PCS\_30\_90S\_55L



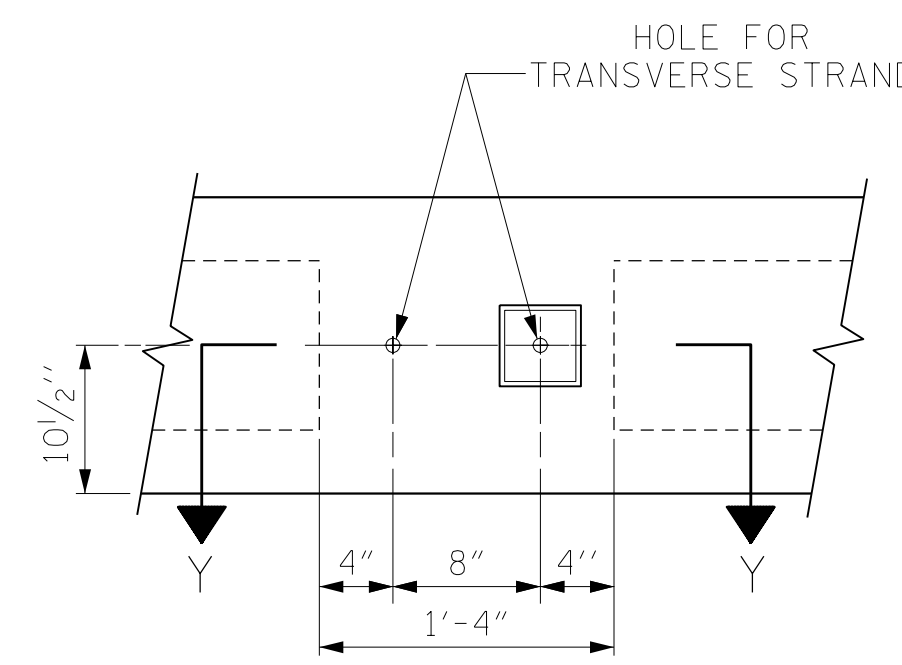


ELEVATION VIEW

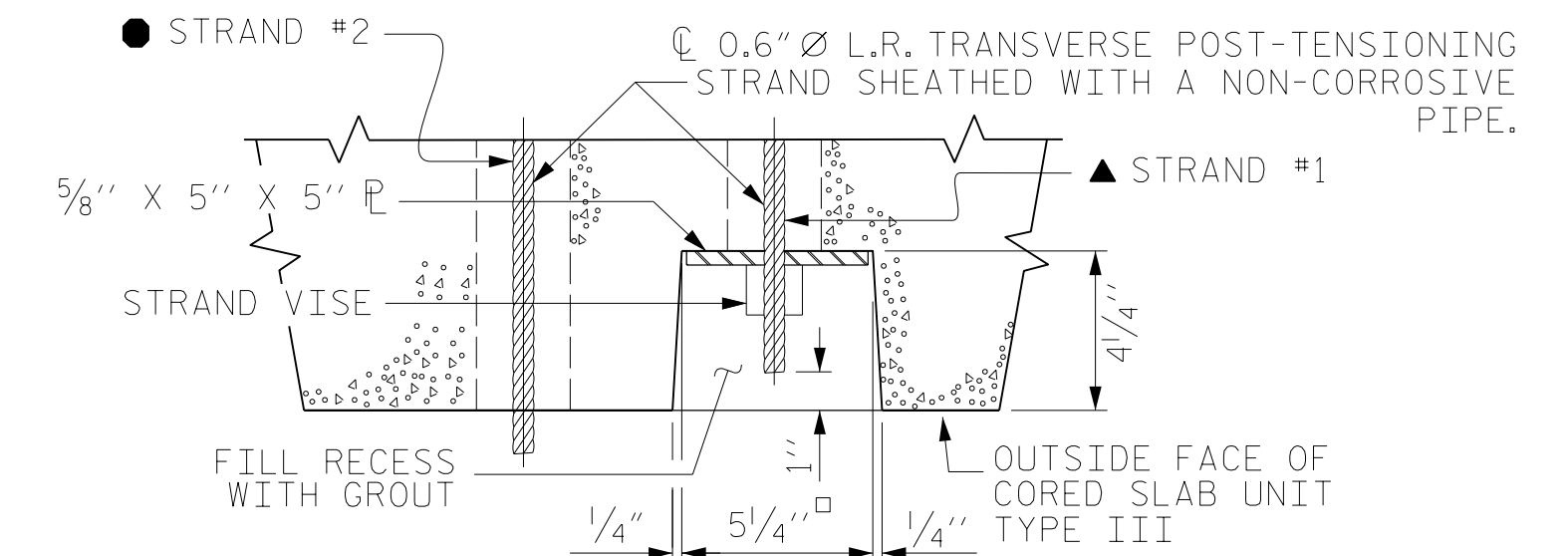


SECTION X-X

DETAIL A  
(TYPE I UNIT)

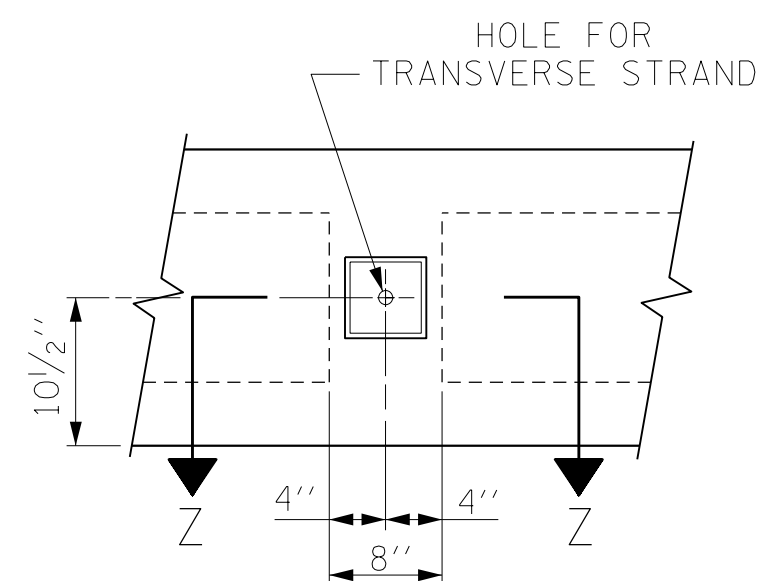


ELEVATION VIEW

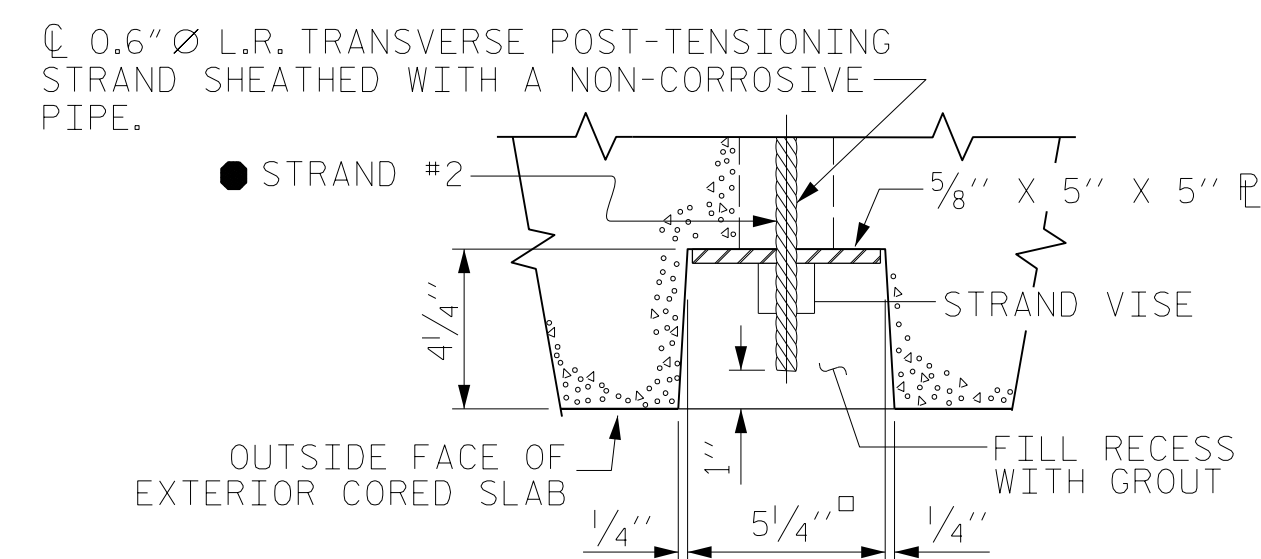


SECTION Y-Y

DETAIL B  
(TYPE III UNIT)  
(UPSTATION STRANDS SHOWN,  
DOWNSTATION STRANDS SIMILAR)

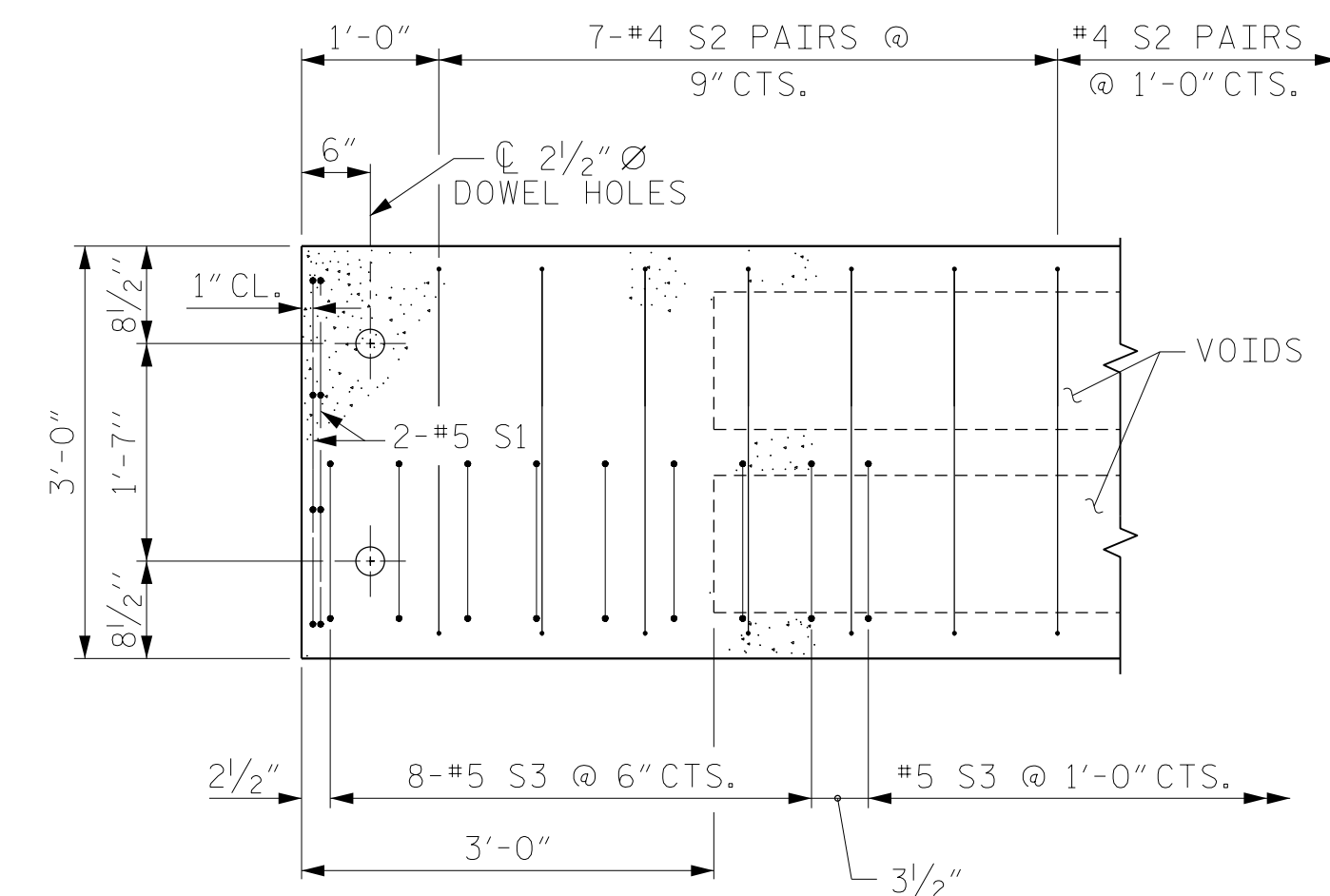


ELEVATION VIEW



SECTION Z-Z

DETAIL C  
(TYPE V UNIT)



DETAIL D

(TYPICAL EACH END OF UNIT)  
NOTE: EXTERIOR UNIT SHOWN - INTERIOR  
UNIT SIMILAR EXCEPT OMIT #5 S3 BARS.

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

SHEET 3 OF 6

GRouted RECESS DETAILS

- ▲ STRAND #1 GOES THRU 6 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE I CONSTRUCTION)
- STRAND #2 GOES THRU ALL 10 CORED SLAB UNITS (TO BE TENSIONED DURING STAGE II CONSTRUCTION)

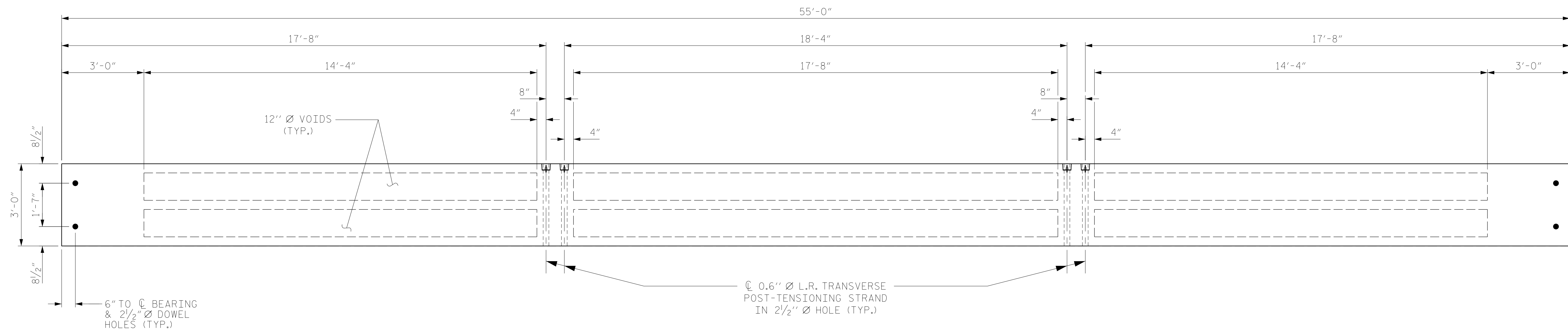
ASSEMBLED BY :	TRP	DATE :	04/2014
CHECKED BY :	JMR	DATE :	05/2014
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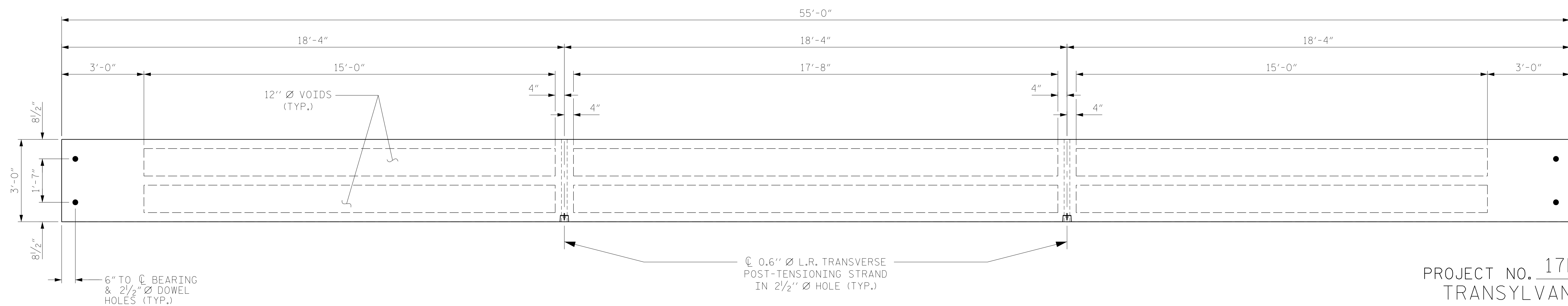
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH						SHEET NO. S-8	
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW						TOTAL SHEETS 21	
REVISIONS							
NO.	BY:	DATE:	NO.	BY:	DATE:		
1			3				
2			4				

STD. NO. 21" PCS2\_30\_90S



PLAN OF STAGE I CORED SLAB UNIT (TYPE I AND TYPE II)

(EXTERIOR UNIT (TYPE I) SHOWN, INTERIOR UNIT (TYPE II) SIMILAR EXPECT OMIT GROUTED RECESSES)



PLAN OF STAGE II CORED SLAB UNIT (TYPE IV AND TYPE V)

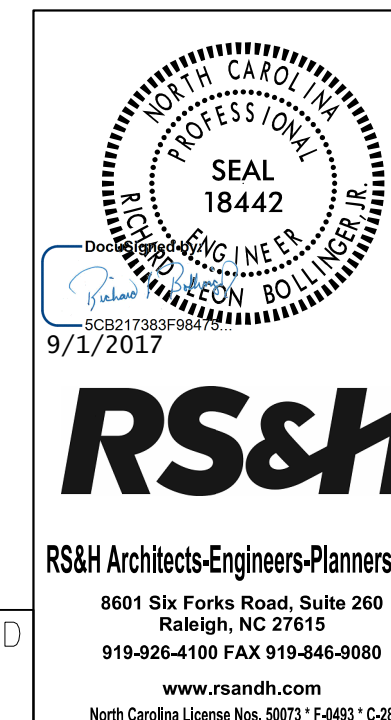
(EXTERIOR UNIT (TYPE V) SHOWN, INTERIOR UNIT (TYPE IV) SIMILAR EXPECT OMIT GROUTED RECESSES)

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-

SHEET 4 OF 6

NOTES:

CORED SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. SEE DETAIL "D", SHEET 3 OF 6 & PLAN VIEW SHEET 2 OF 6 FOR REINFORCEMENT DETAILS.



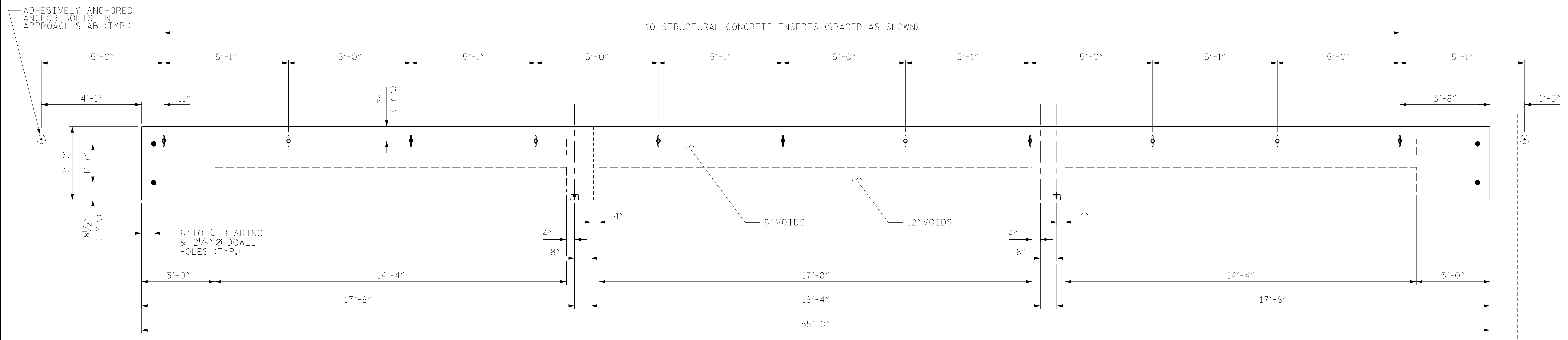
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT DETAILS					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-9
					TOTAL SHEETS 21

DRAWN BY : TRP DATE : 04/2014  
 CHECKED BY : JMR DATE : 05/2014  
 DESIGN ENGINEER OF RECORD : JMR DATE : 05/2014

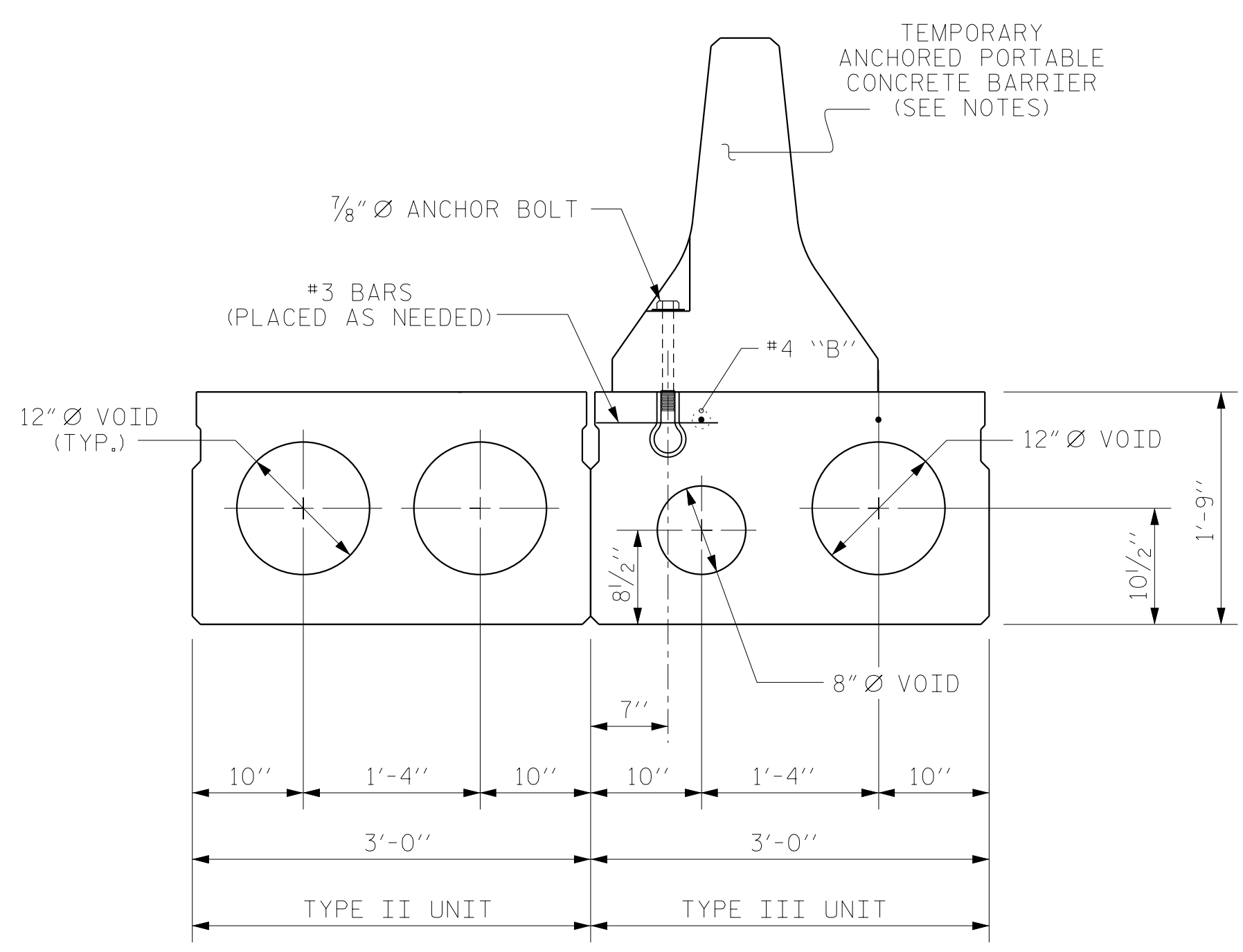
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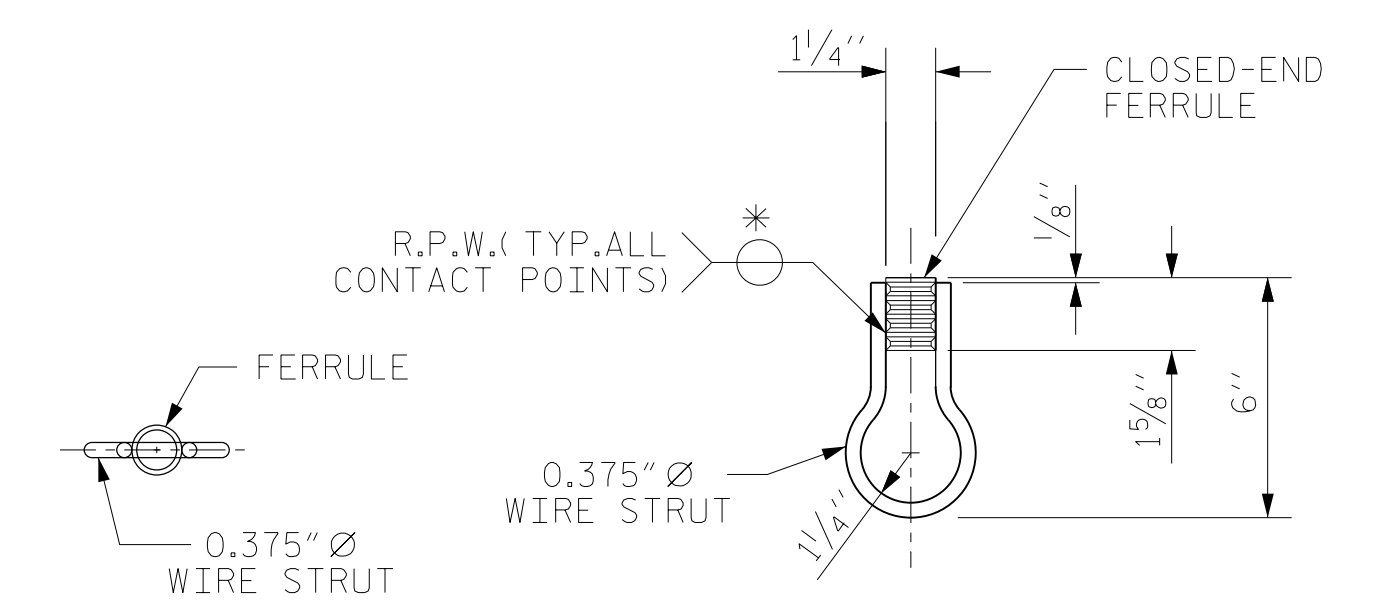
PLAN OF STAGE I CORED SLAB UNIT (TYPE III)

NOTES

- THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:
- FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 1 5/8".
- 1 - 7/8" Ø X 8 1/2" BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. AT THE CONTRACTORS OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø X 8 1/2" GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.
- WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI.
- STRUCTURAL CONCRETE INSERT ASSEMBLIES SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- THE COST OF THE STRUCTURAL CONCRETE INSERT ASSEMBLY, COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.
- TO FACILITATE PLACEMENT OF STRUCTURAL CONCRETE INSERT ASSEMBLIES, #3 BARS MAY BE TIED TO THE #4 B7 BARS IN THE CORED SLAB UNITS. THE COST OF THE #3 BARS SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLABS.
- STIRRUPS IN THE CORED SLAB UNITS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO CLEAR STRUCTURAL CONCRETE INSERT ASSEMBLIES.
- FERRULES TO BE PLUGGED DURING CASTING OF THE CORED SLAB UNITS AS RECOMMENDED BY THE MANUFACTURER.
- TEMPORARY ANCHORED PORTABLE CONCRETE BARRIER SHALL BE AS SPECIFIED IN ROADWAY STANDARD NO. 1170.01. SEE TRAFFIC CONTROL PLANS.
- AFTER REMOVAL OF TEMPORARY ANCHORED PORTABLE CONCRETE BARRIER, THE STRUCTURAL CONCRETE INSERTS SHALL BE FILLED WITH GROUT.



CONCRETE INSERT LOCATION



PLAN ELEVATION

STRUCTURAL CONCRETE INSERT

\* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-

SHEET 5 OF 6



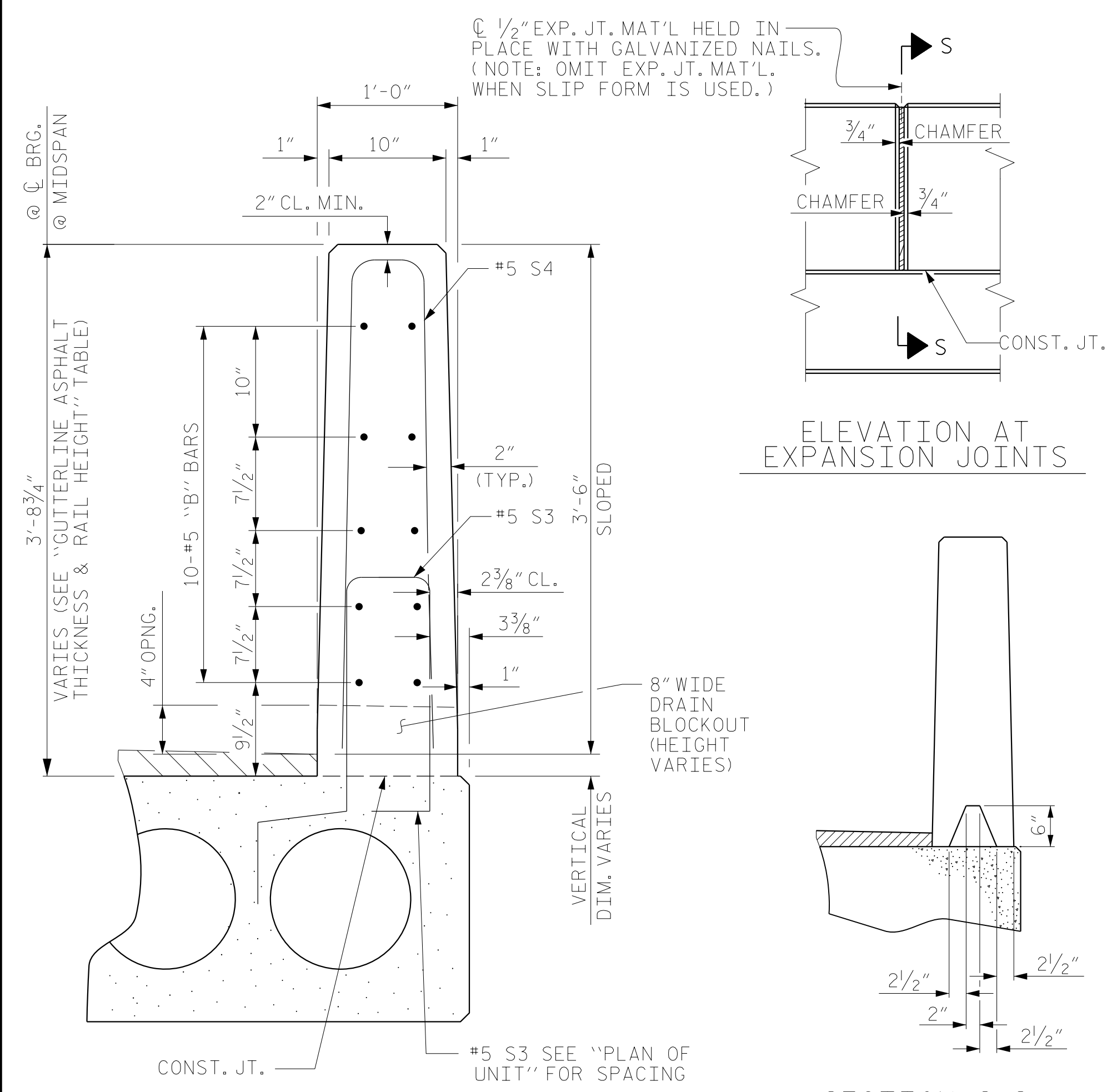
STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 3'-0" X 1'-9"  
 PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 DETAILS

DRAWN BY : TRP DATE : 04/2014  
 CHECKED BY : JMR DATE : 05/2014  
 DESIGN ENGINEER OF RECORD : JMR DATE : 05/2014

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REVISIONS  
 NO. BY: DATE: NO. BY: DATE:  
 1  
 2

SHEET NO.  
 S-10  
 TOTAL SHEETS  
 21

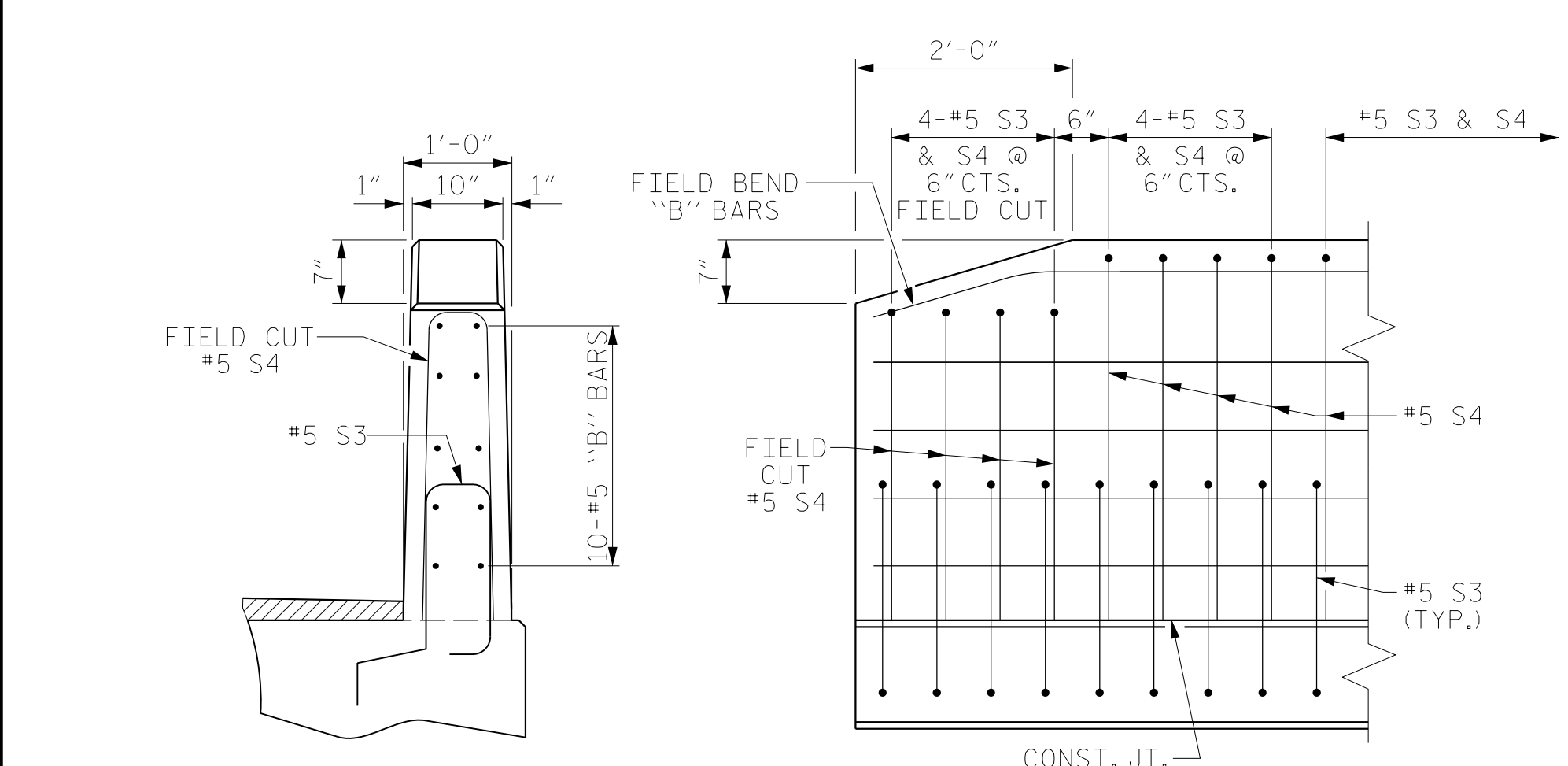


ELEVATION AT EXPANSION JOINTS



SECTION S-S  
AT DAM IN OPEN JOINT  
(THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)

VERTICAL CONCRETE BARRIER RAIL SECTION



END VIEW

SIDE VIEW

END OF RAIL DETAILS

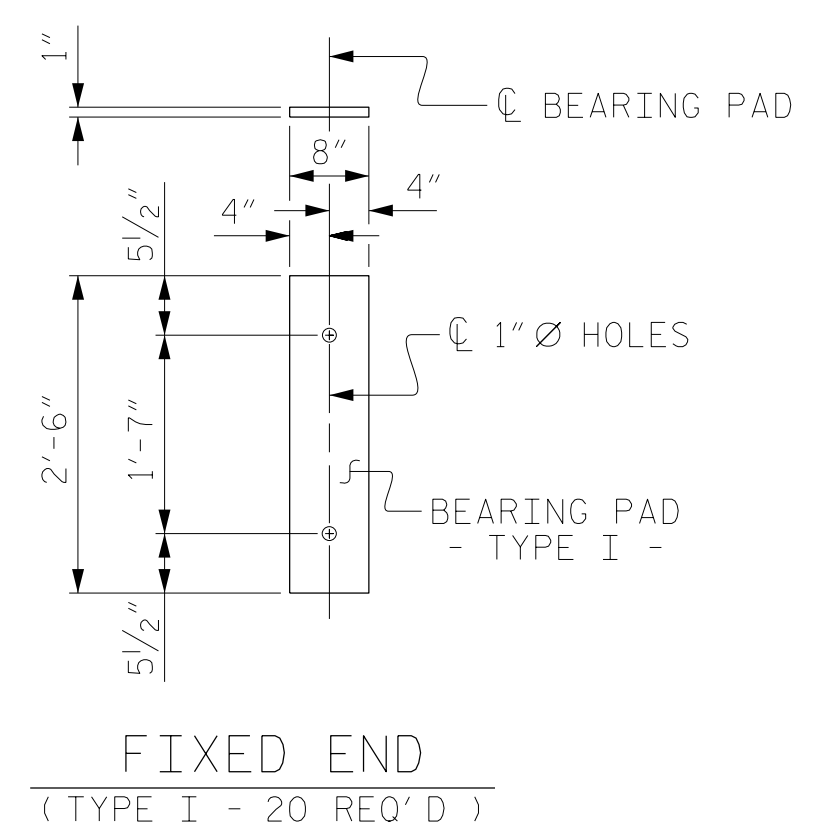
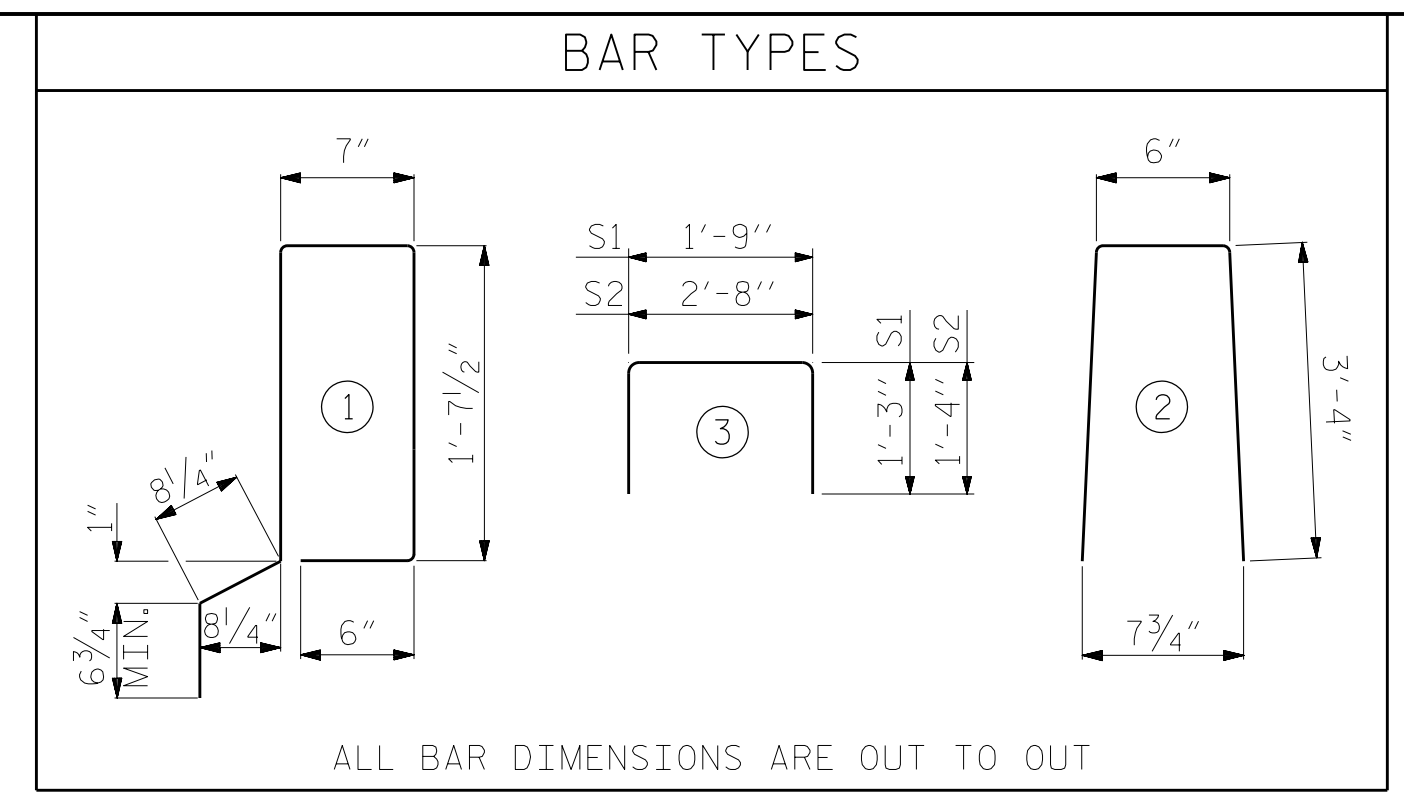
CONCRETE RELEASE STRENGTH	
UNIT	PSI
55' UNITS	4900

DEAD LOAD DEFLECTION AND CAMBER	
55' CORED SLAB UNIT	3'-0" x 1'-9"
CAMBER (SLAB ALONE IN PLACE)	0.6" Ø L.R. STRAND 1 1/2" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	3/8" ↓
FINAL CAMBER	1/8" ↑

\*\* INCLUDES FUTURE WEARING SURFACE

GRADE 270 STRANDS	
AREA ( SQUARE INCHES )	0.6" Ø L.R.
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950

CORED SLABS REQUIRED				
STAGE	TYPE	NUMBER	LENGTH	TOTAL LENGTH
STAGE I	TYPE I	1	55'-0"	55'-0"
	TYPE II	4	55'-0"	220'-0"
	TYPE III	1	55'-0"	55'-0"
	STAGE I TOTAL	6		330'-0"
STAGE II	TYPE IV	3	55'-0"	165'-0"
	TYPE V	1	55'-0"	55'-0"
	STAGE II TOTAL	4		220'-0"
TOTAL		10		550'-0"



FIXED END  
(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

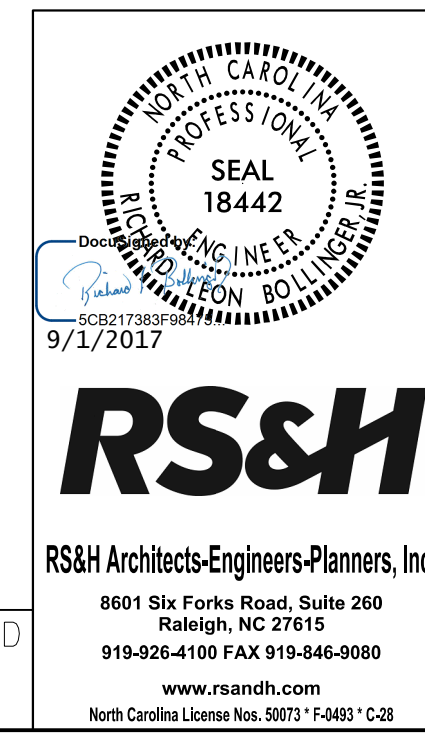
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT		
27'-10" CLEAR ROADWAY	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
55' UNITS	1 5/8"	3'-7 5/8"

BILL OF MATERIAL FOR VERTICAL CONCRETE BARRIER RAIL															
STAGE I					STAGE II										
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT				
* B14	20	#5	STR	27'-1"	565	* B14	20	#5	STR	27'-1"	565				
* S4	64	#5	2	7'-2"	478	* S4	64	#5	2	7'-2"	478				
				* EPOXY COATED REINFORCING STEEL		LBS.		1043		* EPOXY COATED REINFORCING STEEL		LBS.		1043	
				CLASS AA CONCRETE		CU.YDS.		7.1		CLASS AA CONCRETE		CU.YDS.		7.1	
				TOTAL VERTICAL CONCRETE BARRIER RAIL		LN. FT.		55.00		TOTAL VERTICAL CONCRETE BARRIER RAIL		LN. FT.		55.00	

BILL OF MATERIAL FOR ONE 55' CORED SLAB UNIT													
STAGE I													
		TYPE I		TYPE II		TYPE III		TYPE IV		TYPE V			
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT	LENGTH	WEIGHT
B7	4	#4	STR	28'-3"	75	28'-3"	75	28'-3"	75	28'-3"	75	28'-3"	75
S1	8	#5	3	4'-3"	35	4'-3"	35	4'-3"	35	4'-3"	35	4'-3"	35
S2	114	#4	3	5'-4"	406	5'-4"	406	5'-4"	406	5'-4"	406	5'-4"	406
* S3	64	#5	1	5'-7"	373							5'-7"	373
				REINFORCING STEEL		LBS.		516		516		516	
				* EPOXY COATED REINFORCING STEEL		LBS.		373		373		373	
				6500 P.S.I. CONCRETE		CU. YDS.		7.8		7.8		7.8	
				0.6" Ø L.R. STRANDS		No.		19		19		19	

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PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

SHEET 6 OF 6

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD 3'-0" X 1'-9" PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-11
					TOTAL SHEETS 21

STD. NO. 21" PCS3\_30\_90S

ASSEMBLED BY :	TRP	DATE :	05/2014
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DRAWN BY :	DGE 5/09	REV. 12/11	MAA/AAC
CHECKED BY :	BCH 6/09	REV. 8/14	MAA/TMG

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

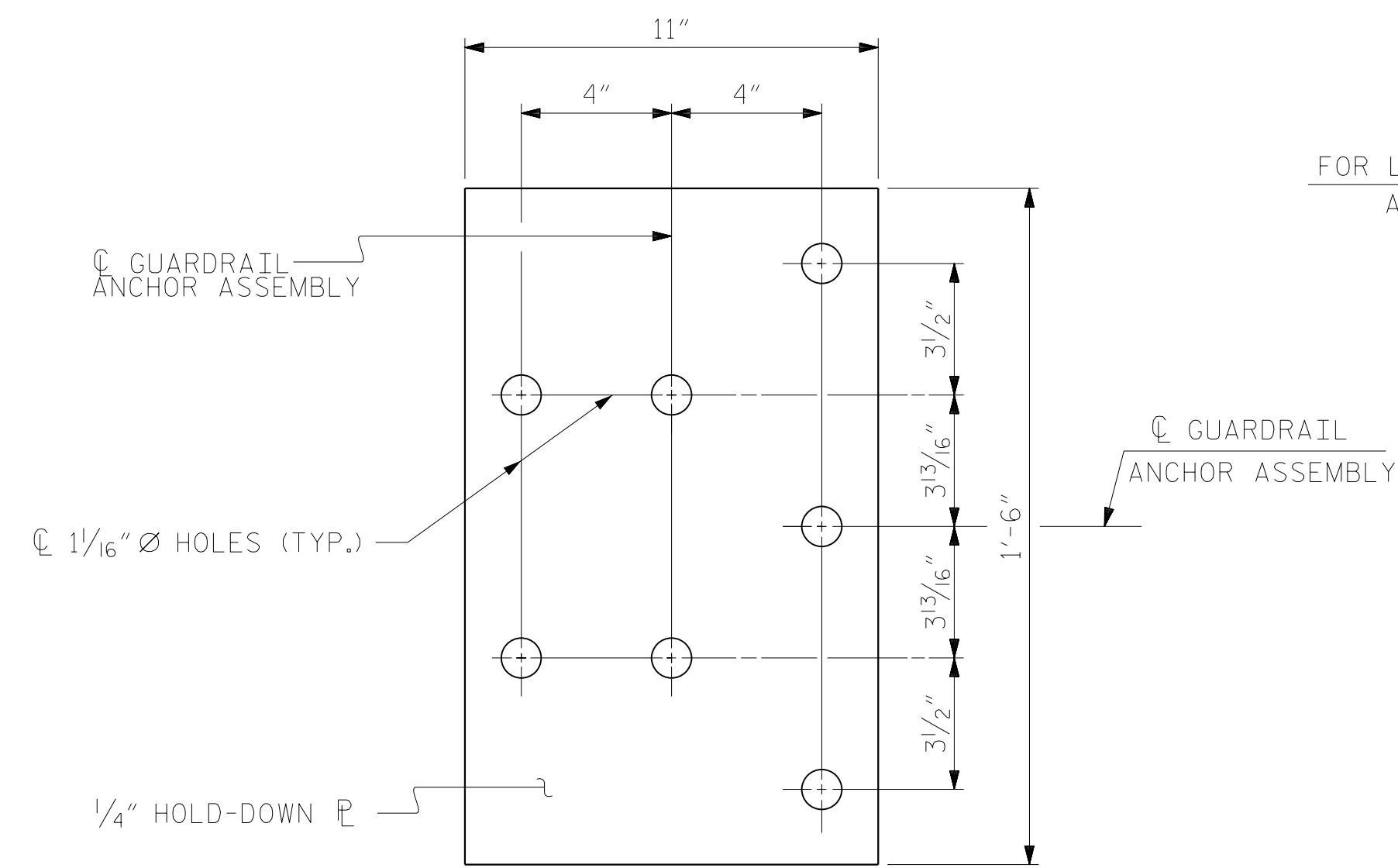
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

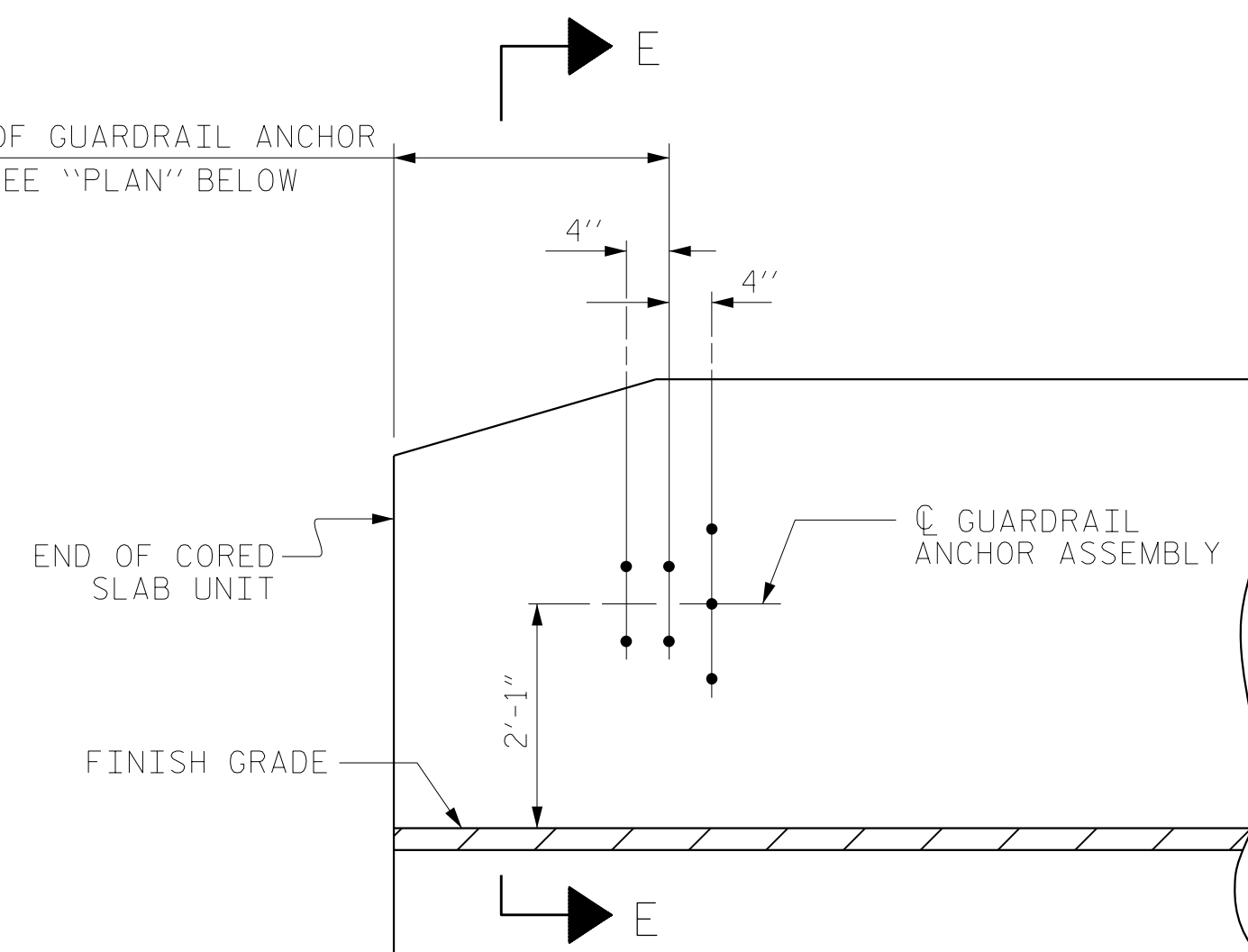
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

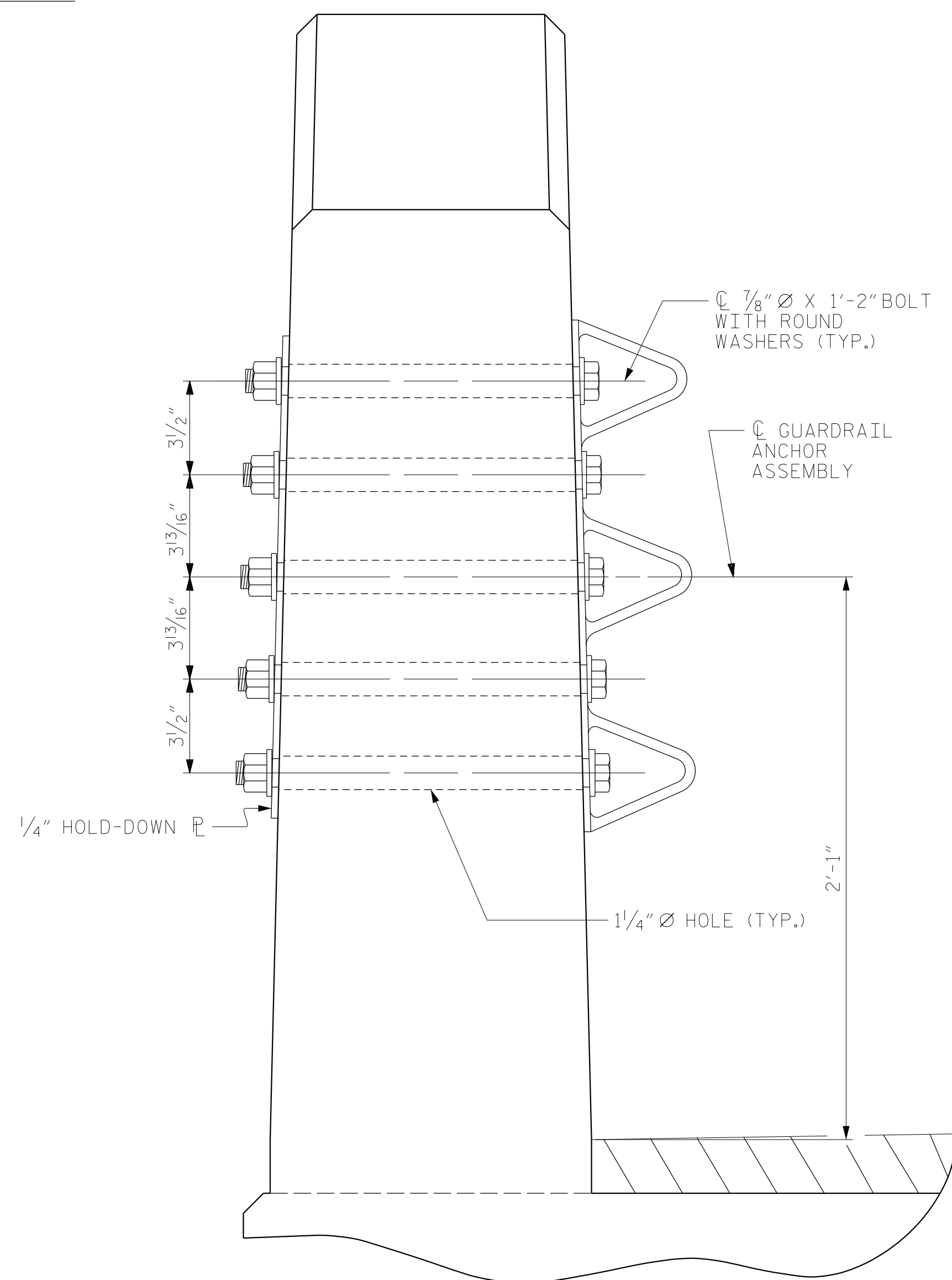


PLAN

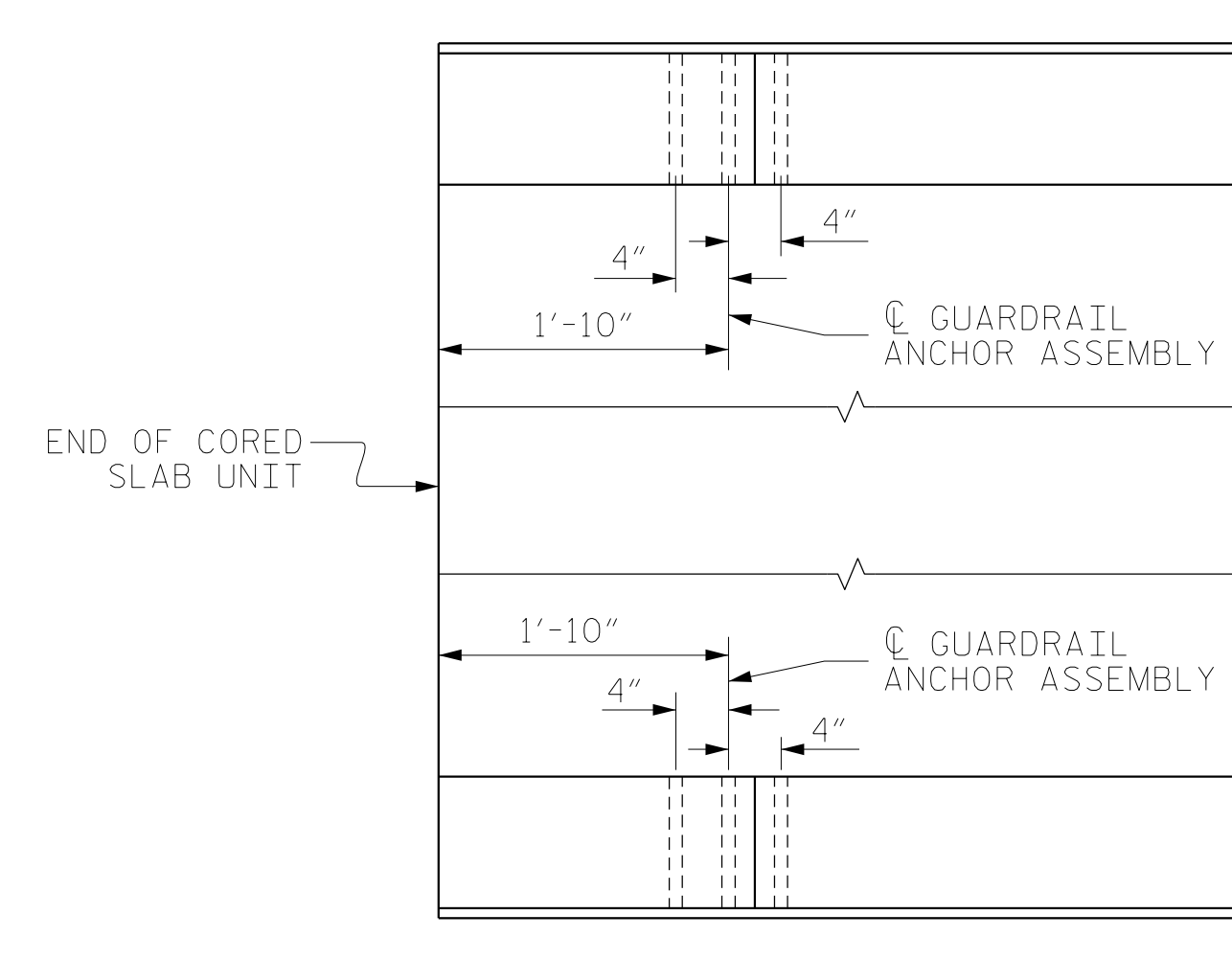
FOR LOCATION OF GUARDRAIL ANCHOR ASSEMBLY, SEE "PLAN" BELOW



ELEVATION



SECTION E-E  
GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

ASSEMBLED BY : TRP	DATE : 04/2014
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DRAWN BY : MAA 5/10	ADDED 5/6/10
CHECKED BY : GM 5/10	REV. 10/1/11
	REV. 12/5/11

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STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
STANDARD  
GUARDRAIL ANCHORAGE  
FOR VERTICAL CONCRETE  
BARRIER RAIL

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1	PDS	08/2017	3			TOTAL SHEETS
2			4			21

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### NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.

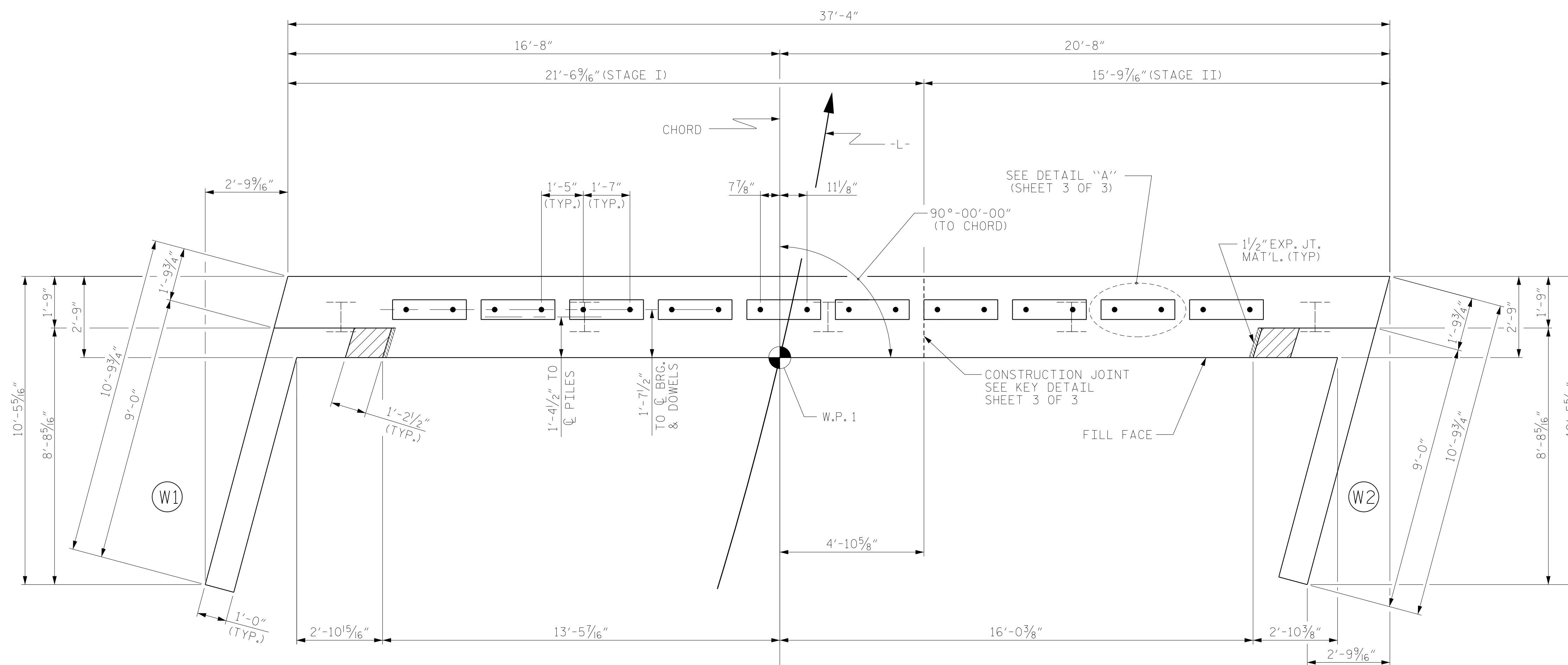
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.

FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.

FOR WING DETAILS, SEE SHEET 2 OF 3.

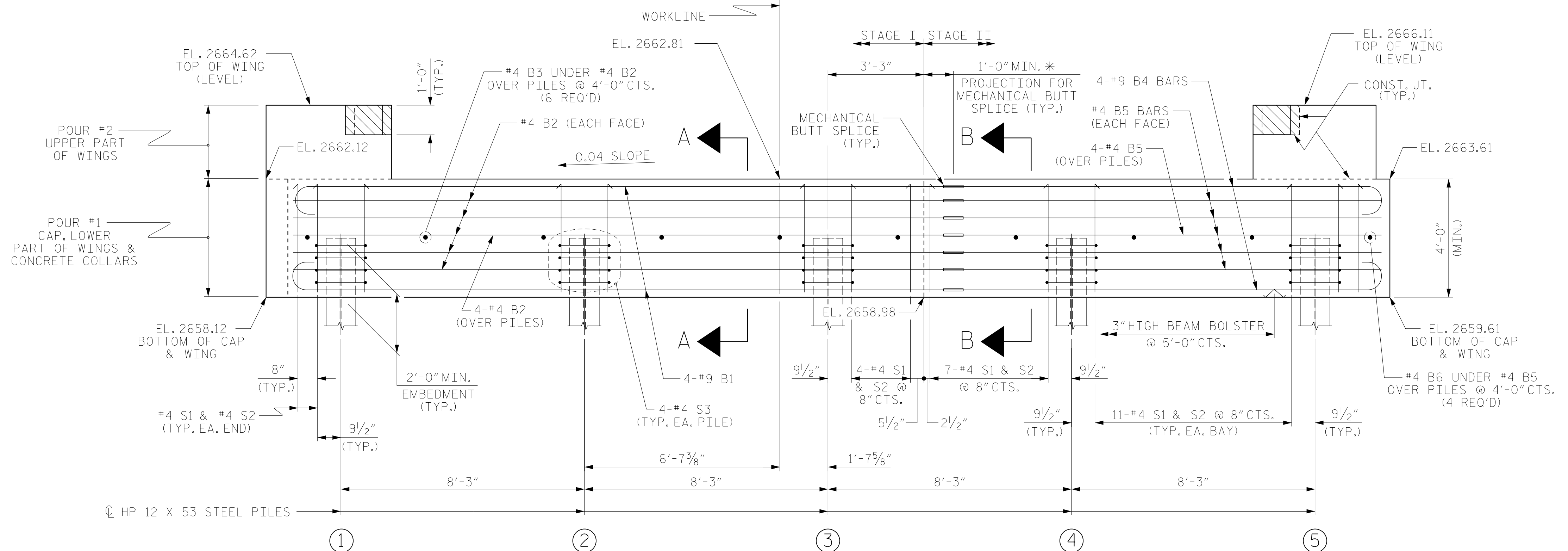
\* USE MECHANICAL BUTT SPLICE FOR ALL "B" BARS EXTENDING FROM STAGE 1 CONSTRUCTION JOINT. #4 BARS MAY BE SPLICED IF A SPLICE OF 2'-5" CAN BE ACHIEVED. BAR LENGTHS SHOWN IN BILL OF MATERIAL CORRESPOND TO THE USE OF MECHANICAL SPLICES.

FOR MECHANICAL BUTT SPLICES, SEE SECTION 1070-9 OF THE STANDARD SPECIFICATIONS.



PLAN

TOP OF PILE ELEVATIONS	
①	2660.23
②	2660.56
③	2660.89
④	2661.22
⑤	2661.55



ELEVATION

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-

SHEET 1 OF 3

Professional Engineer Seal for RS&H Architects-Engineers-Planners, Inc. License No. 508217382F98, dated 9/1/2017.

**RS&H**  
 RS&H Architects-Engineers-Planners, Inc.  
 8601 Six Forks Road, Suite 260  
 Raleigh, NC 27615  
 919-926-4100 FAX 919-846-9080  
 www.rsandh.com  
 North Carolina License No. 508217382F98

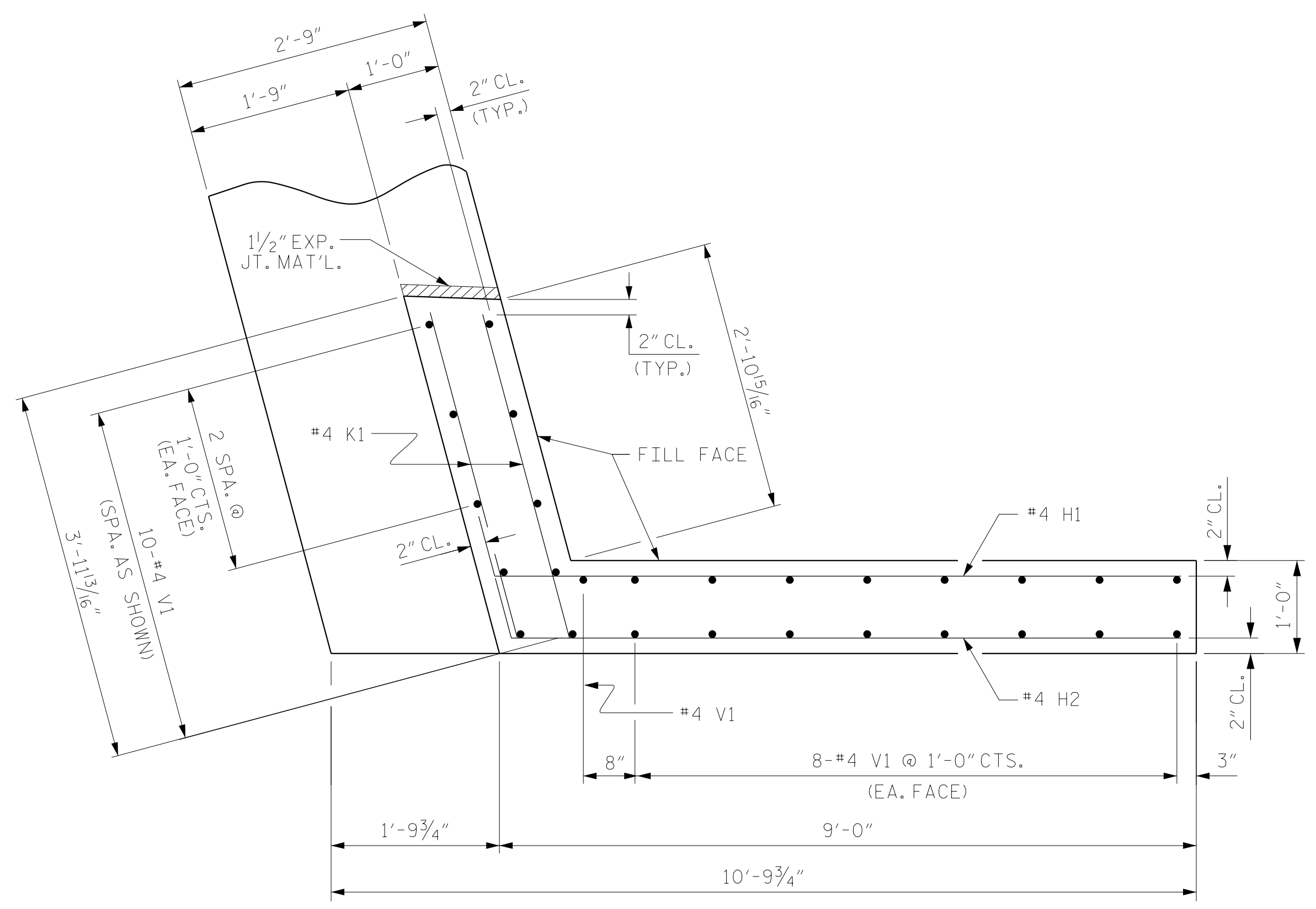
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SUBSTRUCTURE END BENT No. 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	PDS	08/2017	3		
2			4		

SHEET NO.	
S-13	TOTAL SHEETS 21

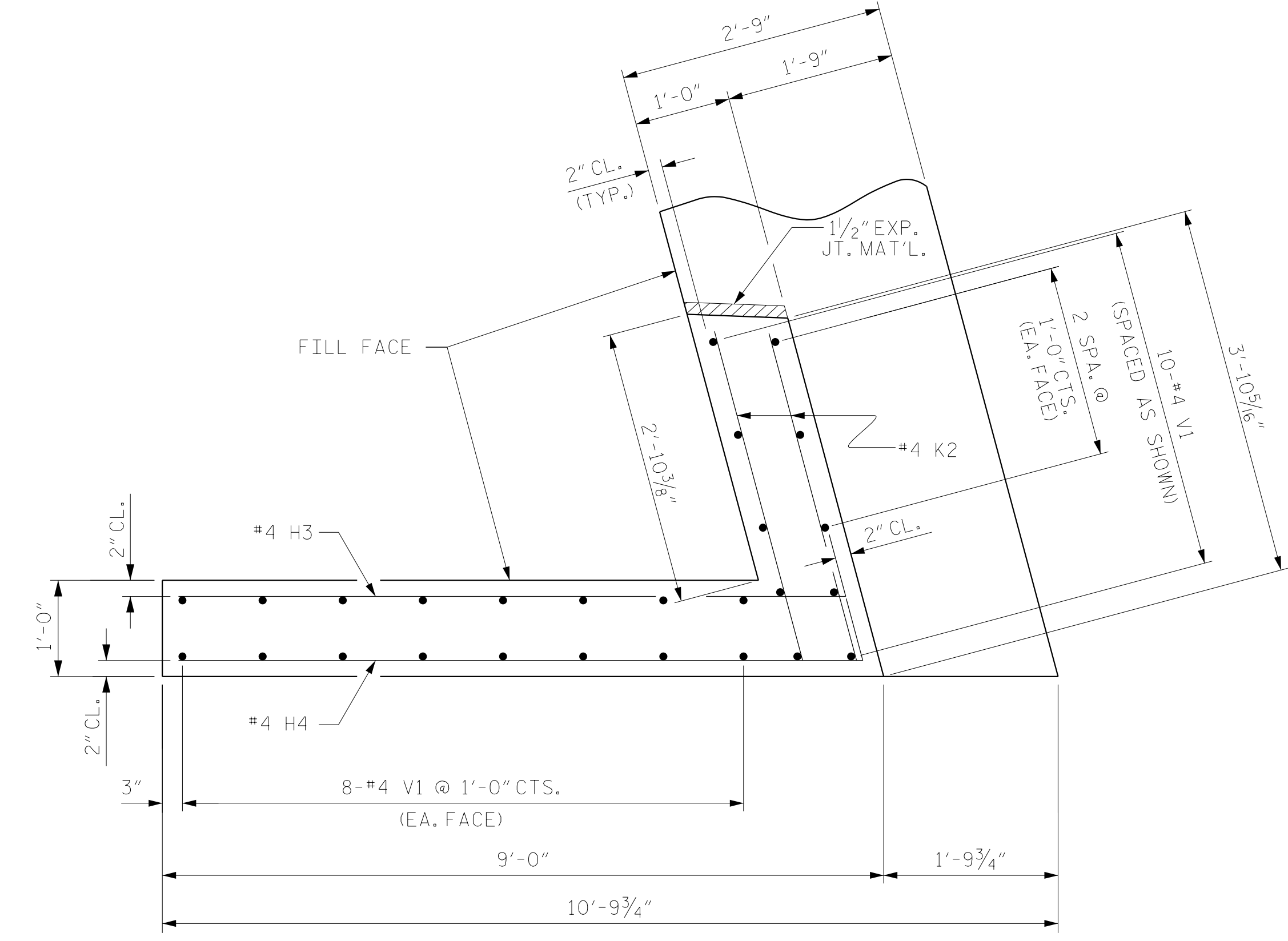
DRAWN BY : TRP DATE : 05/2014  
 CHECKED BY : JMR DATE : 05/2014  
 DESIGN ENGINEER OF RECORD : JMR DATE : 05/2014

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A AND SECTION B-B, SEE SHEET 3 OF 3.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

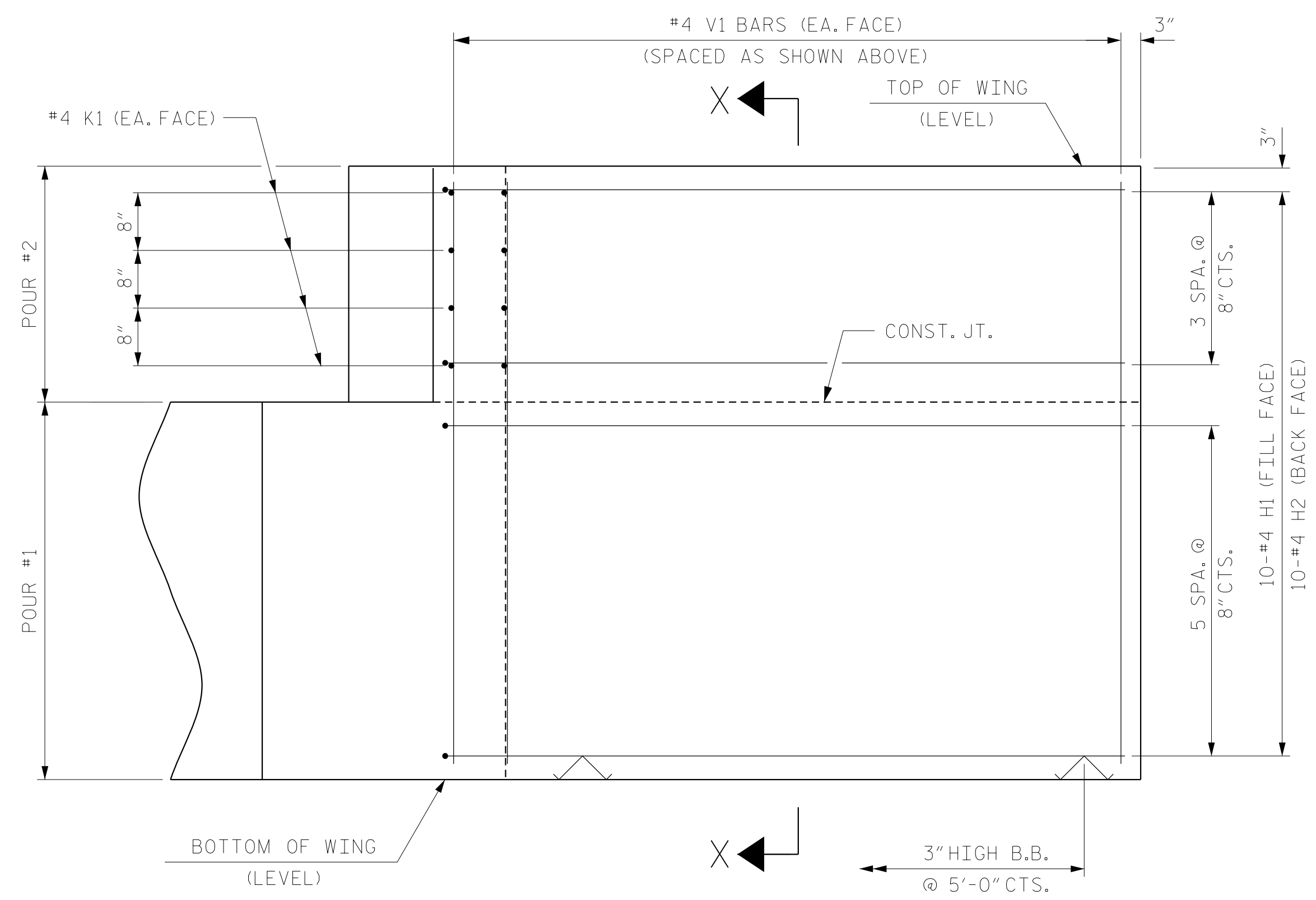
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



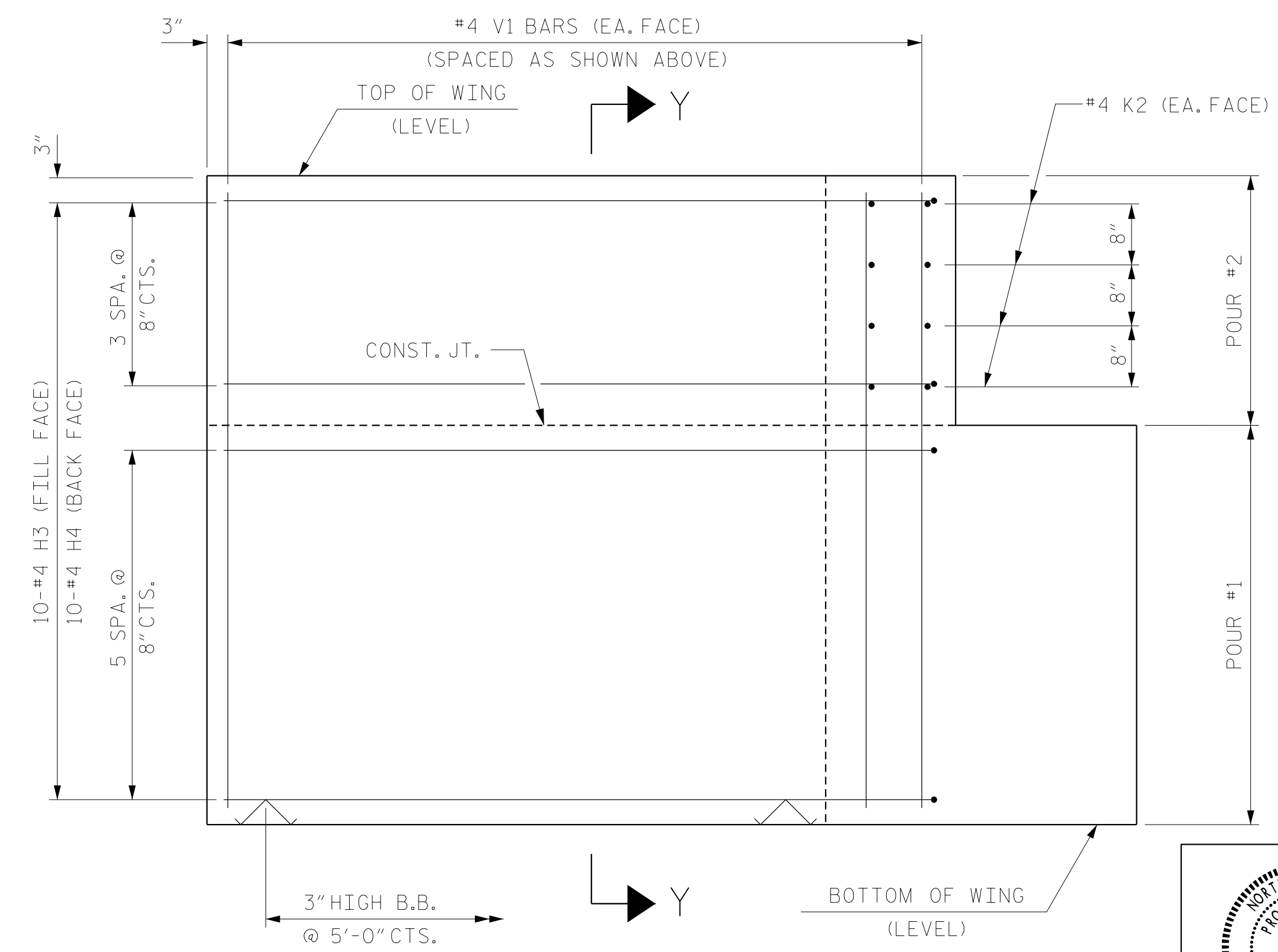
PLAN OF WING (W1)  
STAGE I



PLAN OF WING (W2)  
STAGE II

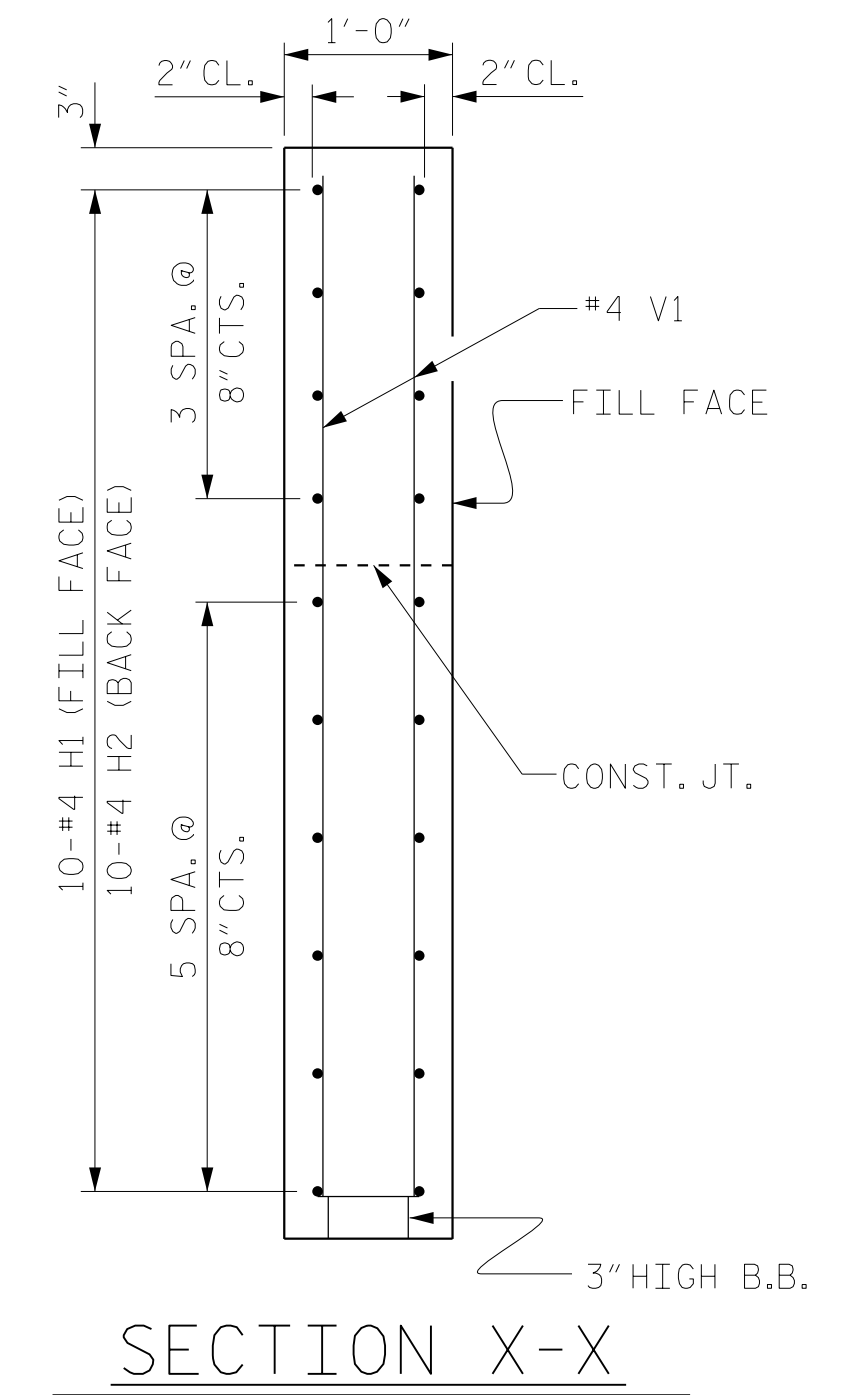


ELEVATION OF WING (W1)  
STAGE I

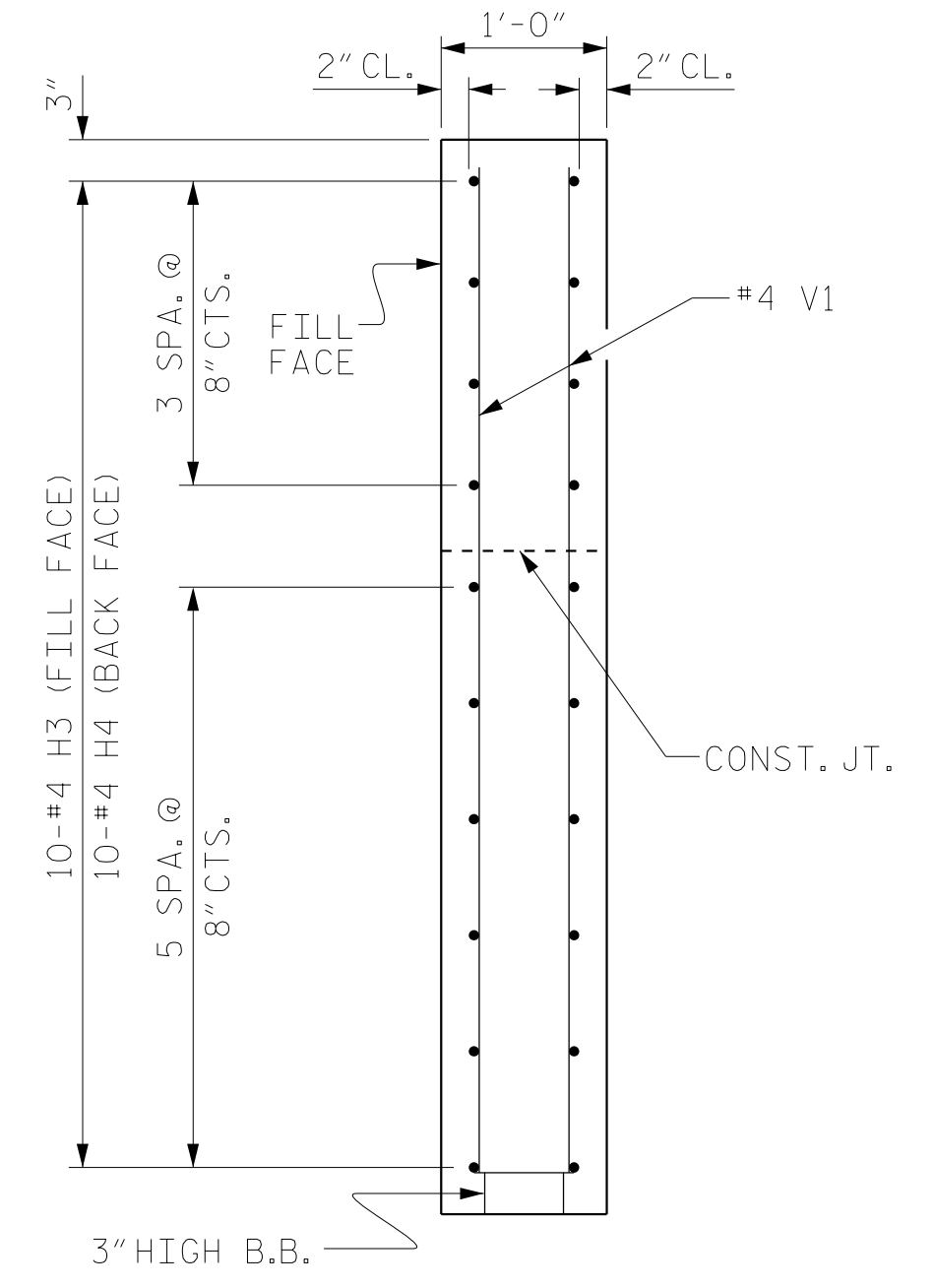


ELEVATION OF WING (W2)  
STAGE II

WING DETAILS



SECTION X-X



SECTION Y-Y

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

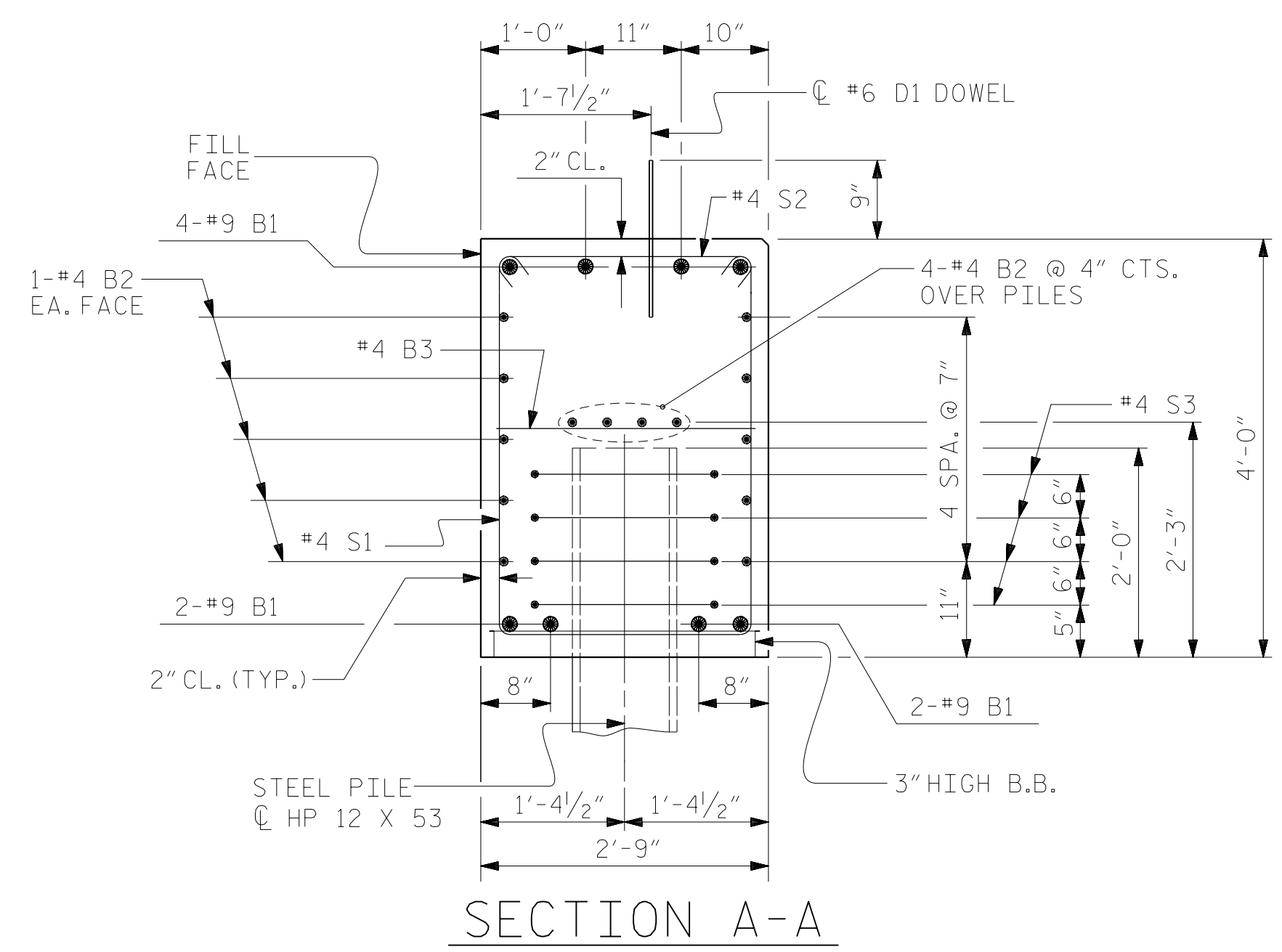
SHEET 2 OF 3

ASSEMBLED BY :	TRP	DATE :	05/2014
CHECKED BY :	JMR	DATE :	05/2014
DRAWN BY :	WJH 12/II		
CHECKED BY :	AAC 12/II		

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

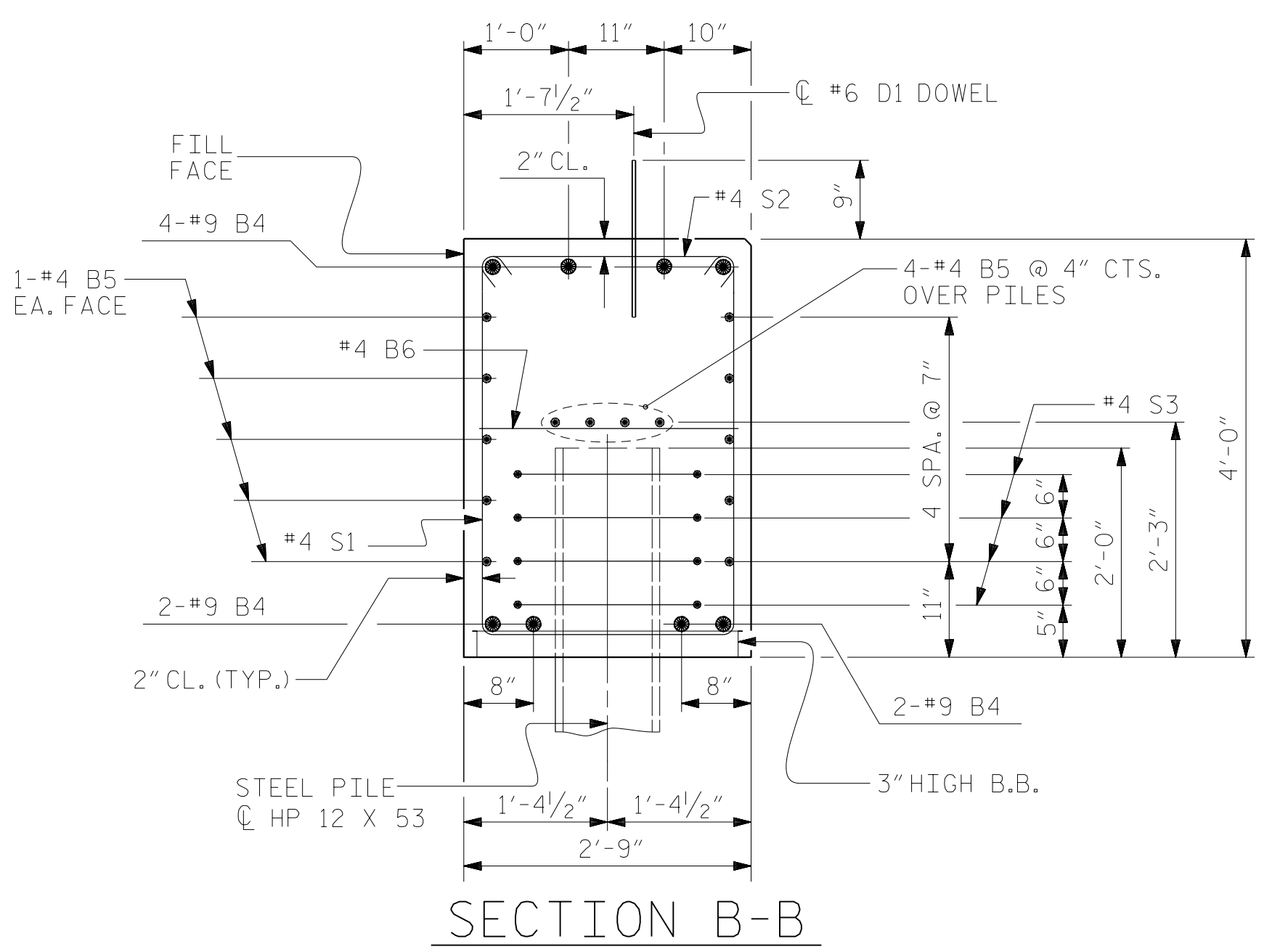
Professional Engineer Seal for RS&H Architects-Engineers-Planners, Inc. License No. 18442, dated 9/1/2017.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S-14					TOTAL SHEETS 21



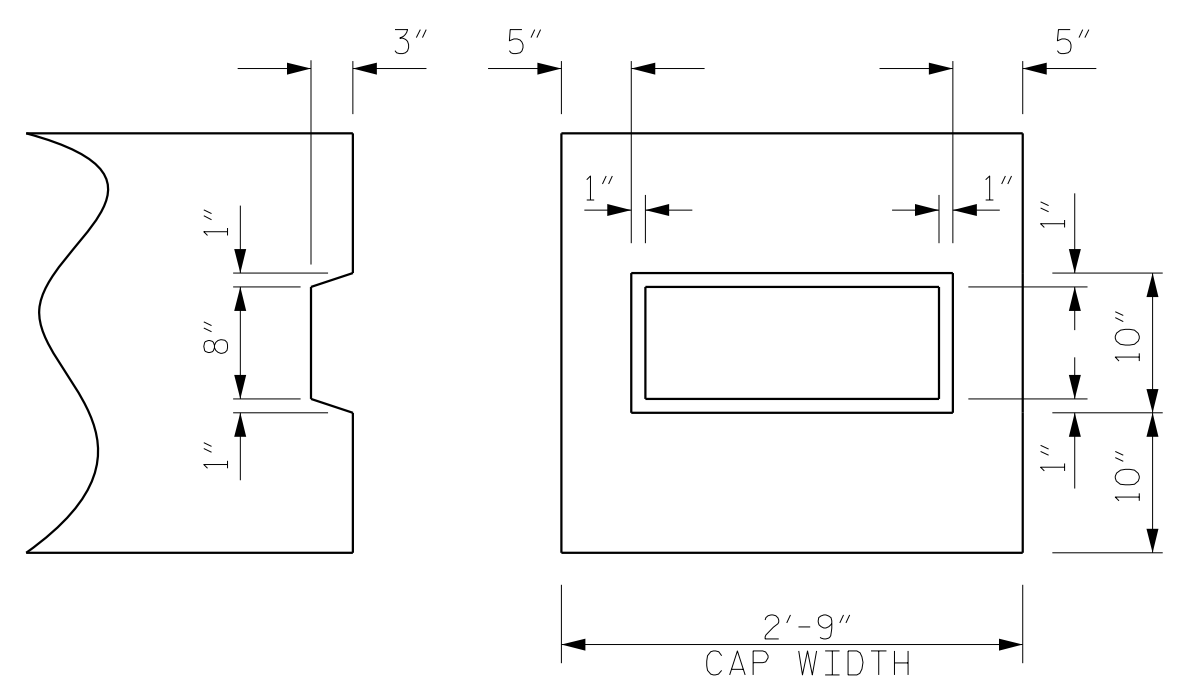
SECTION A-A

(CONCRETE COLLAR NOT SHOWN FOR CLARITY. SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL.")

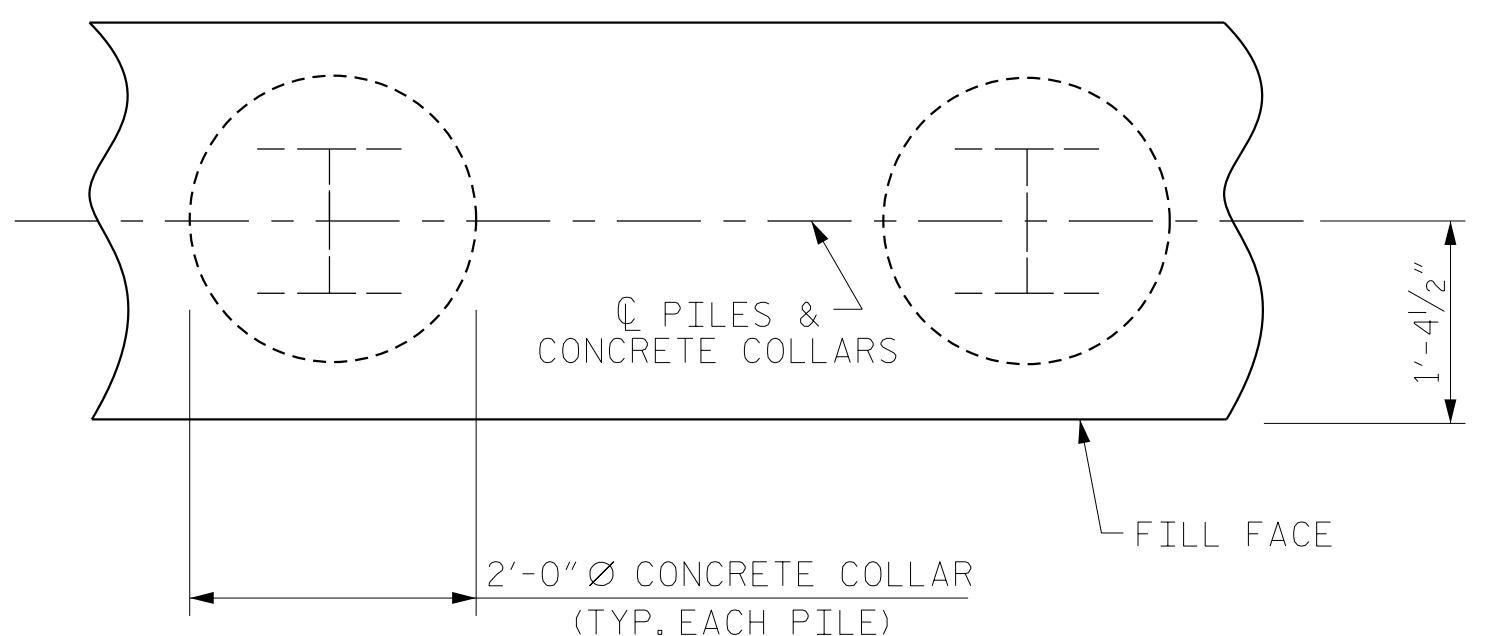


SECTION B-B

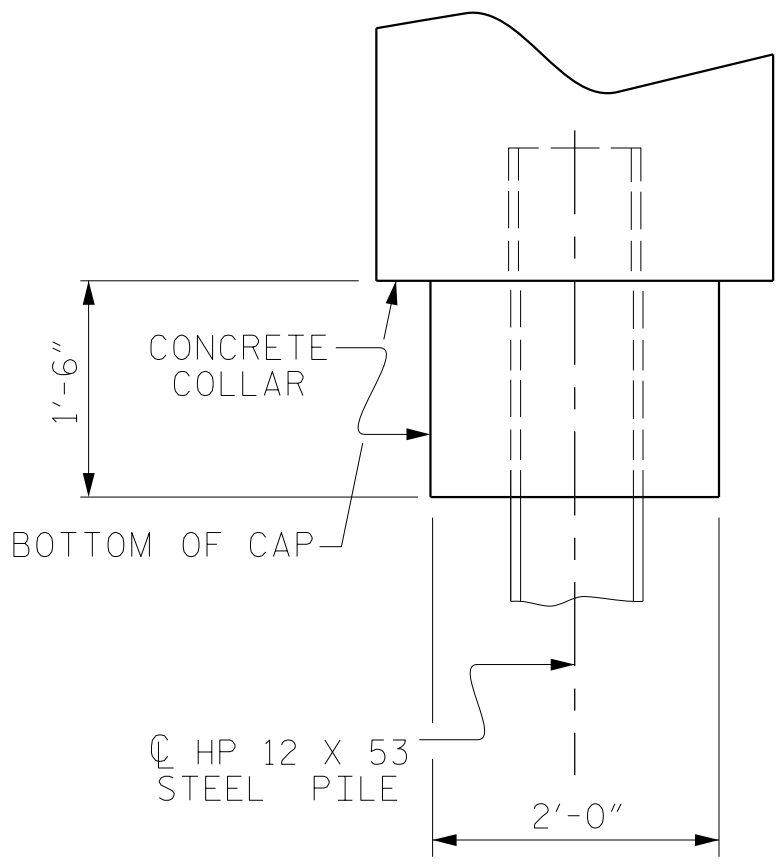
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KEY DETAIL

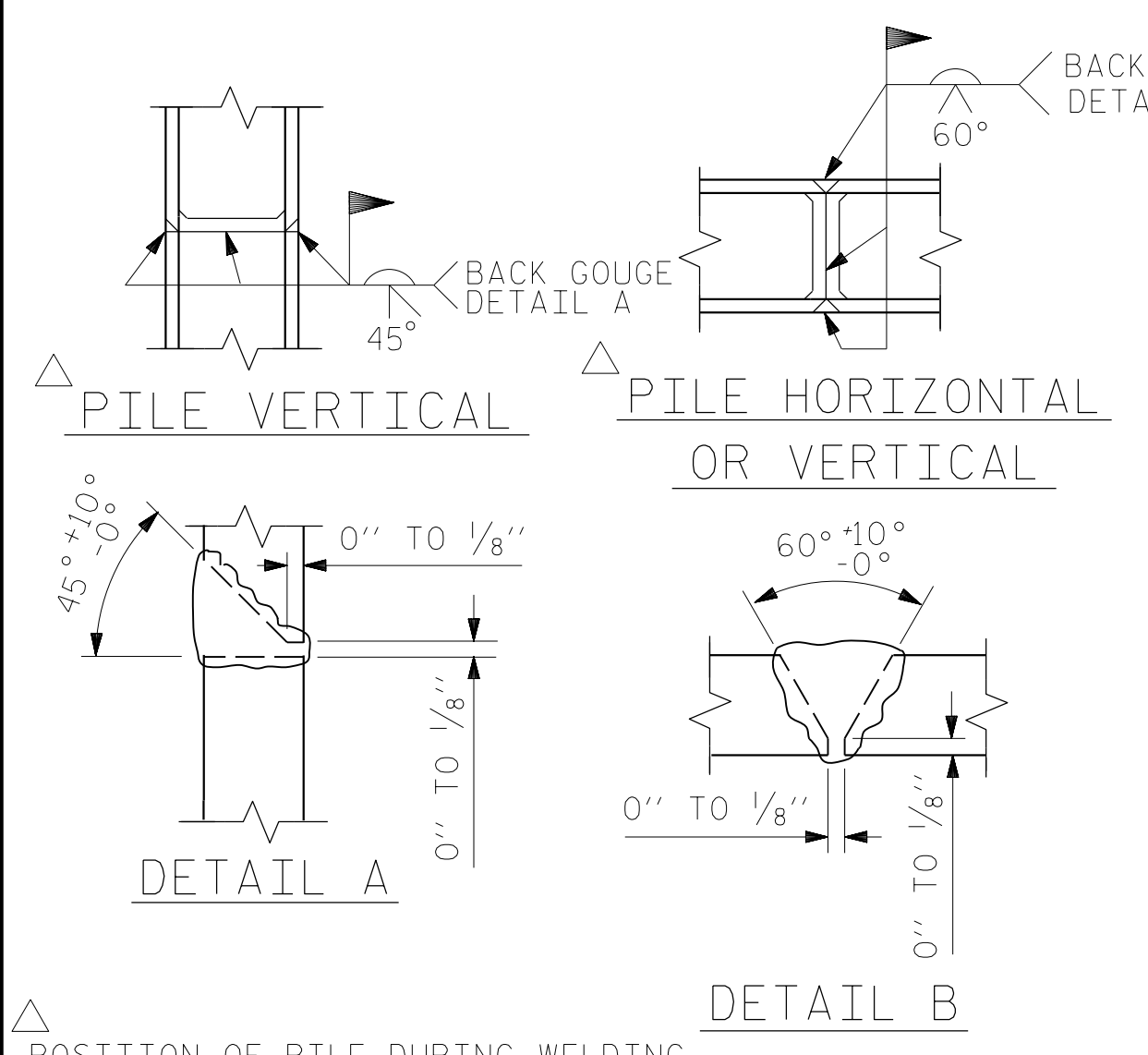


PLAN

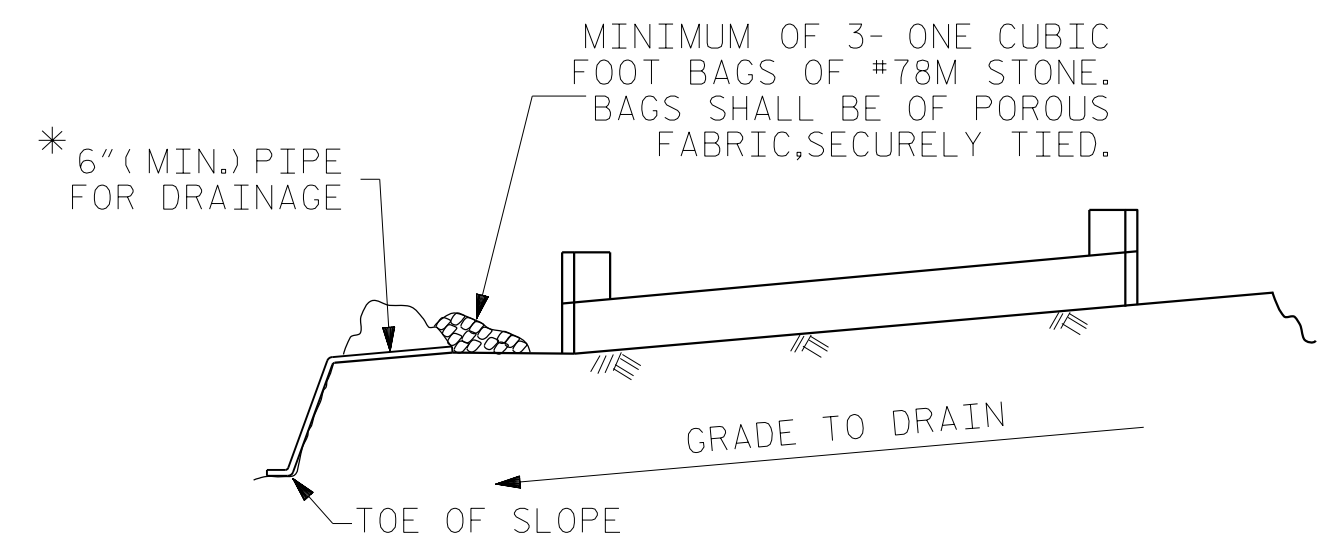


ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



PILE SPLICING DETAILS



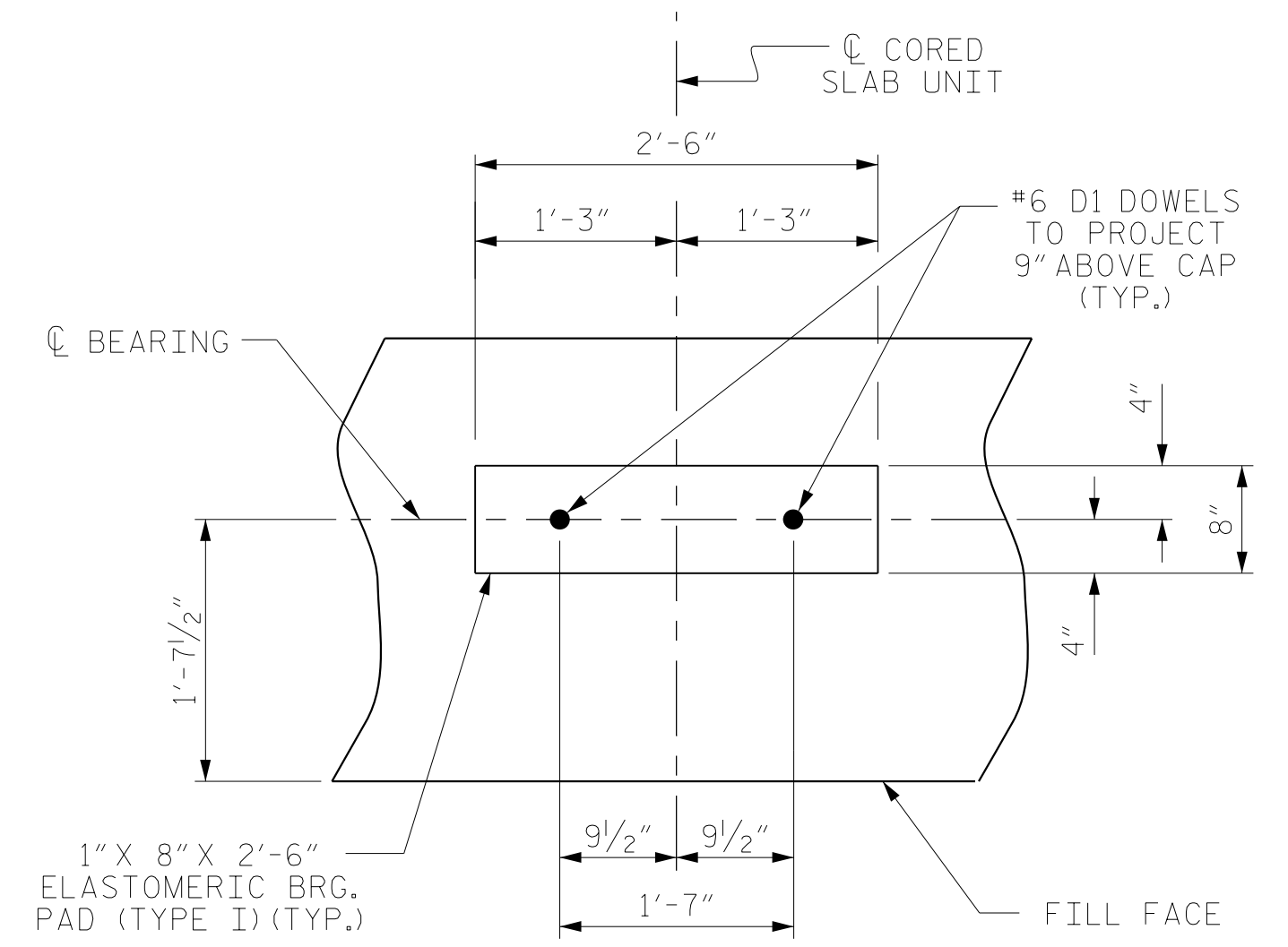
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

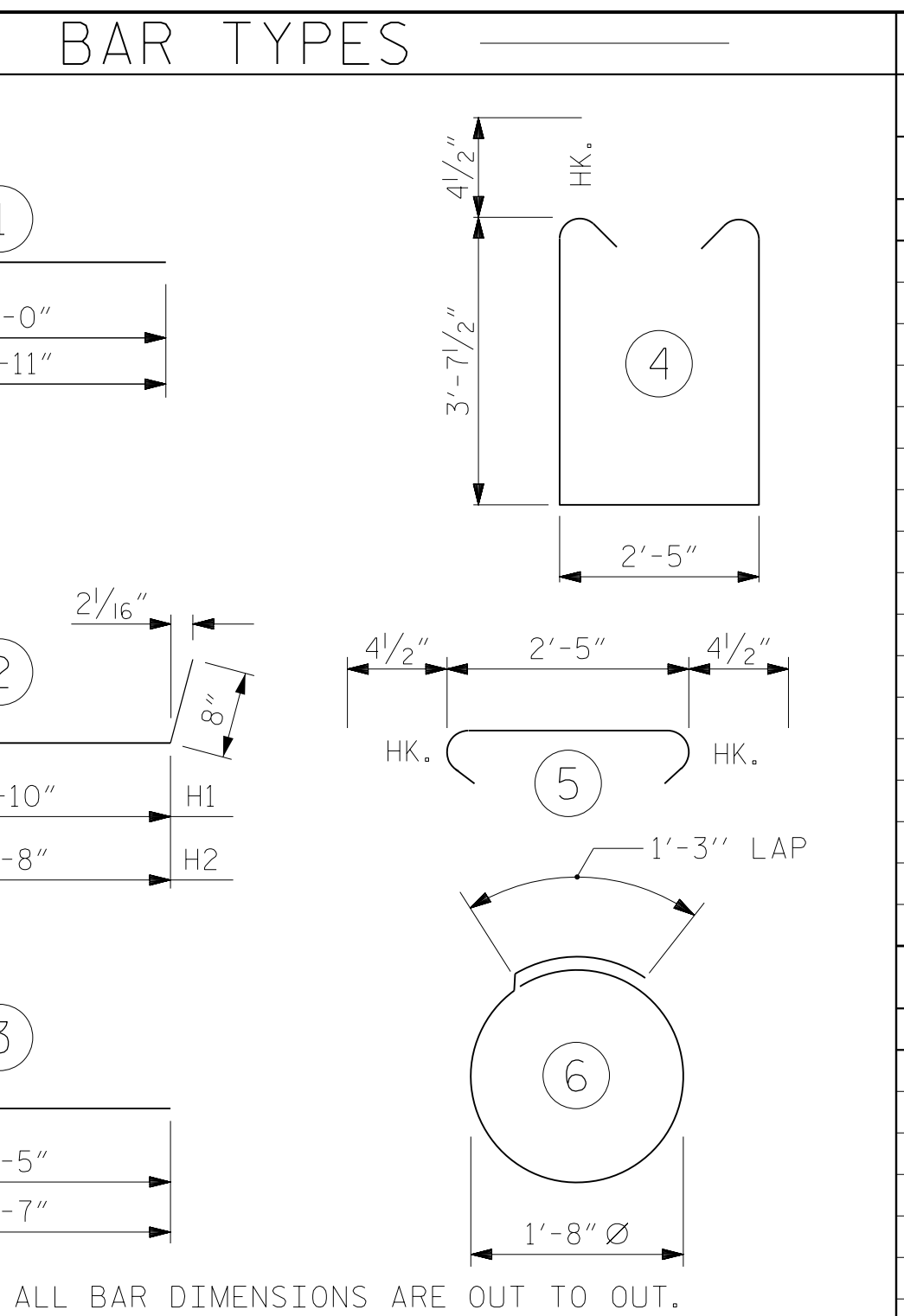
\*MODIFY DRAIN TO RELEASE BETWEEN BRIDGES AND IN FRONT OF END BENTS FOR STAGE 1.

TEMPORARY DRAINAGE AT END BENT



DETAIL "A"

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



ALL BAR DIMENSIONS ARE OUT TO OUT.

	STAGE I	STAGE II	TOTAL
REINFORCING STEEL =	1473 LBS.	1032 LBS.	2505 LBS.
CLASS A CONCRETE			
POUR #1 CAP, LOWER PART OF WINGS AND COLLARS	10.7 C.Y.	7.8 C.Y.	18.5 C.Y.
POUR #2 UPPER PART OF WINGS	1.1 C.Y.	1.1 C.Y.	2.2 C.Y.
TOTAL CLASS A CONCRETE	11.8 C.Y.	8.9 C.Y.	20.7 C.Y.
PILE DRIVING EQUIPMENT SETUP	NO. 3	NO. 2	NO. 5
HP 12X53 STEEL PILES	NO. 3 45 LIN. FT	NO. 2 30 LIN. FT	NO. 5 75 LIN. FT
STEEL PILE POINTS	3 EA.	2 EA.	5 EA.
PILE EXCAVATION IN SOIL	9 LIN. FT.	6 LIN. FT.	15 LIN. FT.
PILE EXCAVATION NOT IN SOIL	9 LIN. FT.	6 LIN. FT.	15 LIN. FT.

BILL OF MATERIAL					
END BENT #1					
STAGE I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	24'-3"	660
B2	14	#4	STR	23'-0"	215
B3	6	#4	STR	2'-5"	10
D1	12	#6	STR	1'-6"	27
H1	10	#4	2	9'-6"	63
H2	10	#4	2	9'-4"	62
K1	8	#4	STR	3'-7"	19
S1	28	#4	4	10'-5"	195
S2	28	#4	5	3'-2"	59
S3	12	#4	6	6'-6"	52
V1	27	#4	STR	6'-2"	111
REINFORCING STEEL =					1473 LBS.
STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	8	#9	1	15'-2"	413
B5	14	#4	STR	13'-11"	130
B6	4	#4	STR	2'-5"	6
D1	8	#6	STR	1'-6"	18
H3	10	#4	3	9'-1"	61
H4	10	#4	3	9'-3"	62
K2	8	#4	STR	3'-6"	19
S1	20	#4	4	10'-5"	139
S2	20	#4	5	3'-2"	42
S3	8	#4	6	6'-6"	35
V1	26	#4	STR	6'-2"	107
REINFORCING STEEL =					1032 LBS.

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-  
 SHEET 3 OF 3

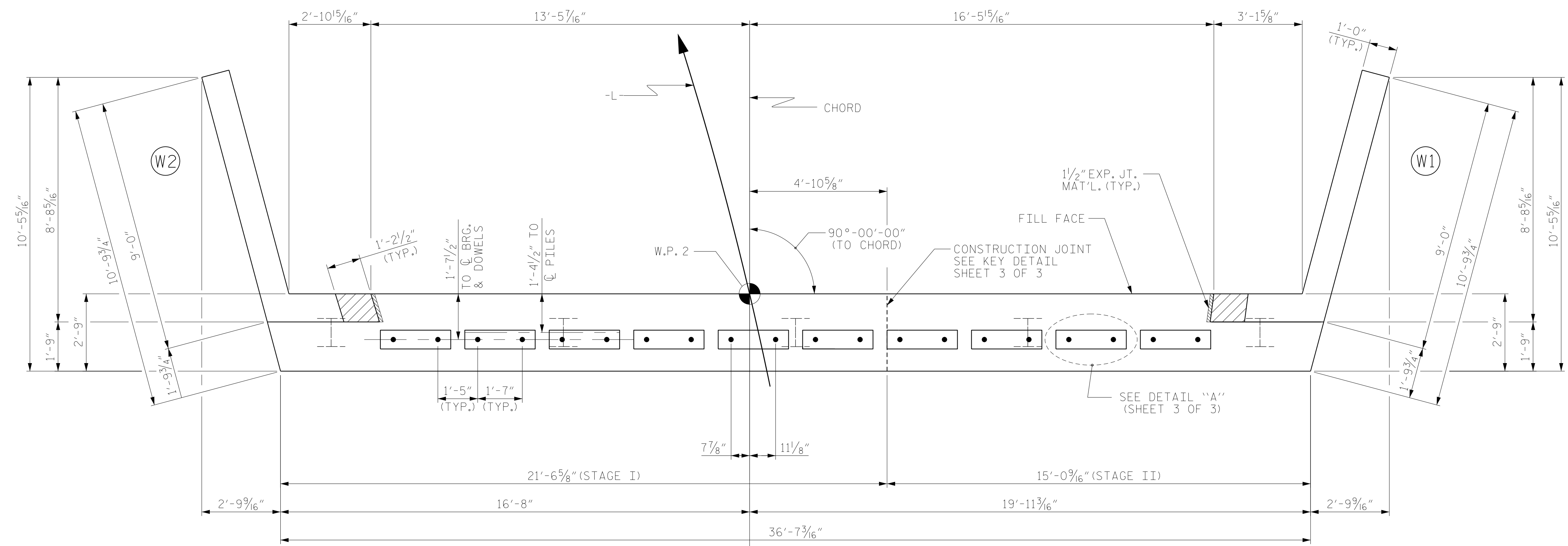
RS&H Architects-Engineers-Planners, Inc.  
 8601 Six Forks Road, Suite 260  
 Raleigh, NC 27615  
 919-926-4100 FAX 919-846-9080  
 www.rsandh.com  
 North Carolina License No. 50737-F-0403-1-C-01

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT No. 1 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

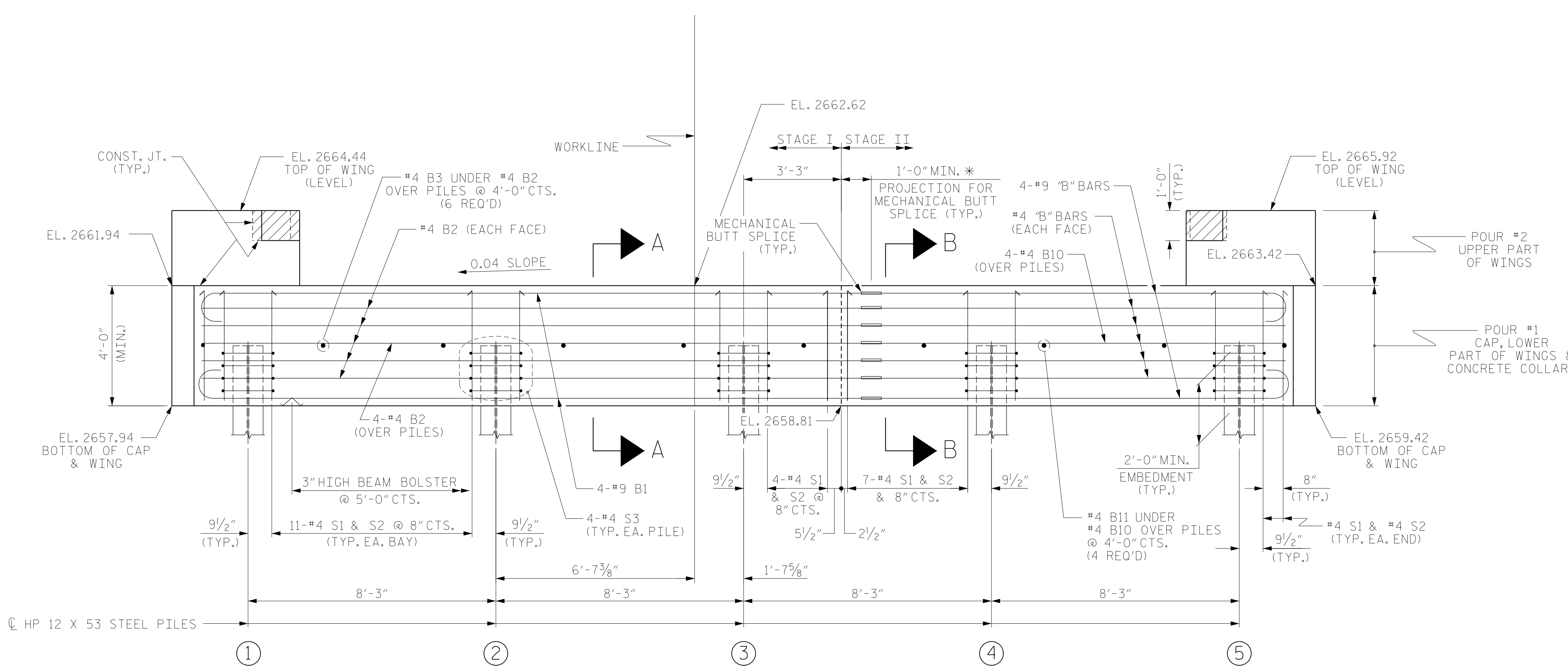
SHEET NO. S-15	TOTAL SHEETS 21
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ASSEMBLED BY : TRP	DATE : 05/2014
CHECKED BY : JMR	DATE : 05/2014
DRAWN BY : WJH 12/11	
CHECKED BY : AAC 12/11	





PLAN



ELEVATION

WINGS NOT SHOWN FOR CLARITY.  
 FOR SECTION A-A AND SECTION B-B, SEE SHEET 3 OF 3.  
 CONCRETE COLLARS FOR STEEL PILES NOT SHOWN IN PLAN AND ELEVATION VIEWS FOR CLARITY.  
 SEE "CORROSION PROTECTION FOR STEEL PILES DETAIL", SHEET 3 OF 3.

NOTES

- STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS.
- THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE VERTICAL CONCRETE BARRIER RAIL IS CAST IF SLIP FORMING IS USED.
- FOR PILE SPLICE DETAILS, SEE SHEET 3 OF 3.
- FOR WING DETAILS, SEE SHEET 2 OF 3.
- \* USE MECHANICAL BUTT SPLICE FOR ALL "B" BARS EXTENDING FROM STAGE 1 CONSTRUCTION JOINT. #4 BARS MAY BE SPLICED IF A SPLICE OF 2'-5" CAN BE ACHIEVED. BAR LENGTHS SHOWN IN BILL OF MATERIAL CORRESPOND TO THE USE OF MECHANICAL SPLICES.
- FOR MECHANICAL BUTT SPLICES, SEE SECTION 1070-9 OF THE STANDARD SPECIFICATIONS.

TOP OF PILE ELEVATIONS	
①	2660.05
②	2660.38
③	2660.71
④	2661.04
⑤	2661.37

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-  
 SHEET 1 OF 3

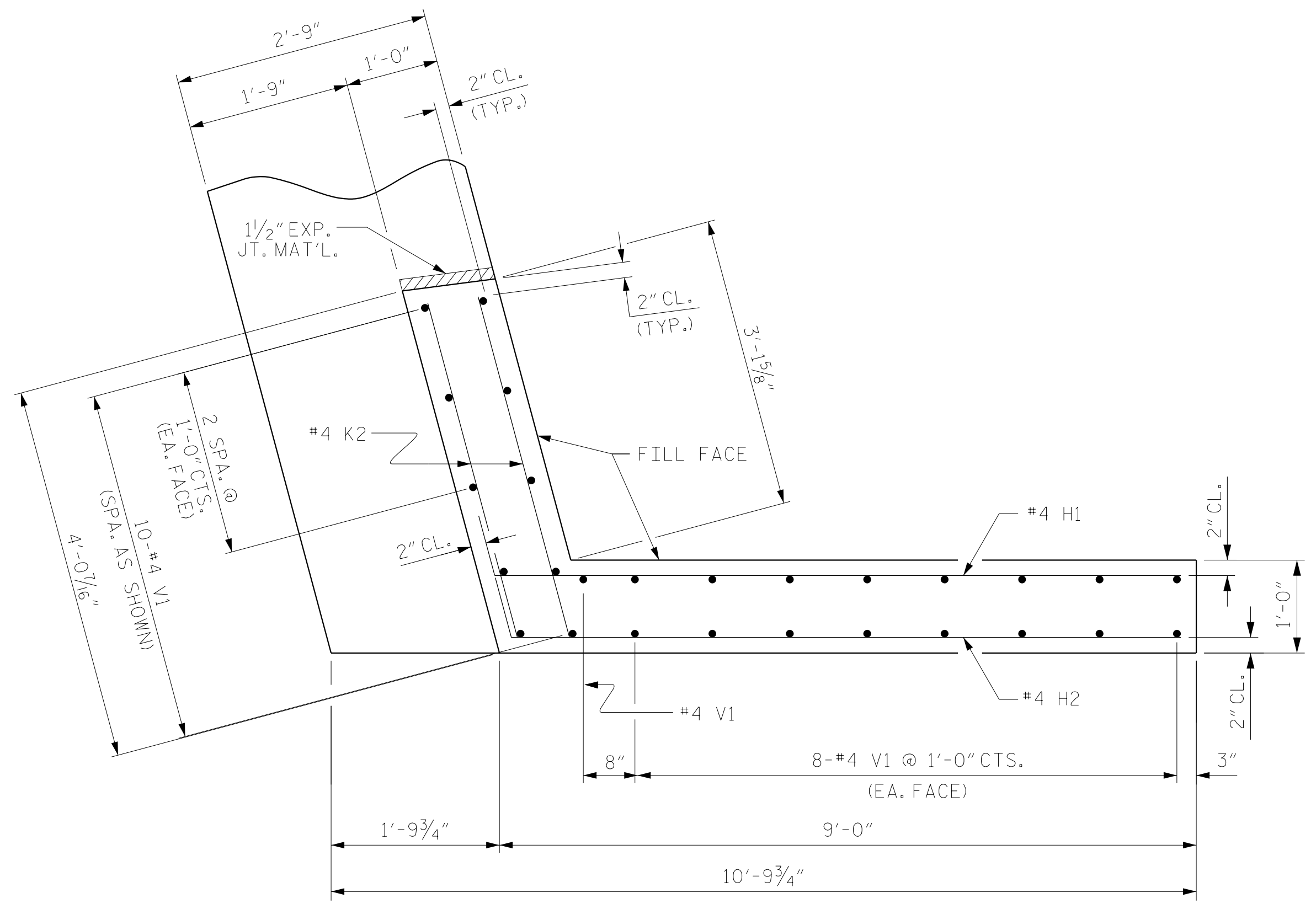
DRAWN BY : TRP DATE : 05/2014  
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 DESIGN ENGINEER OF RECORD : JMR DATE : 05/2014

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

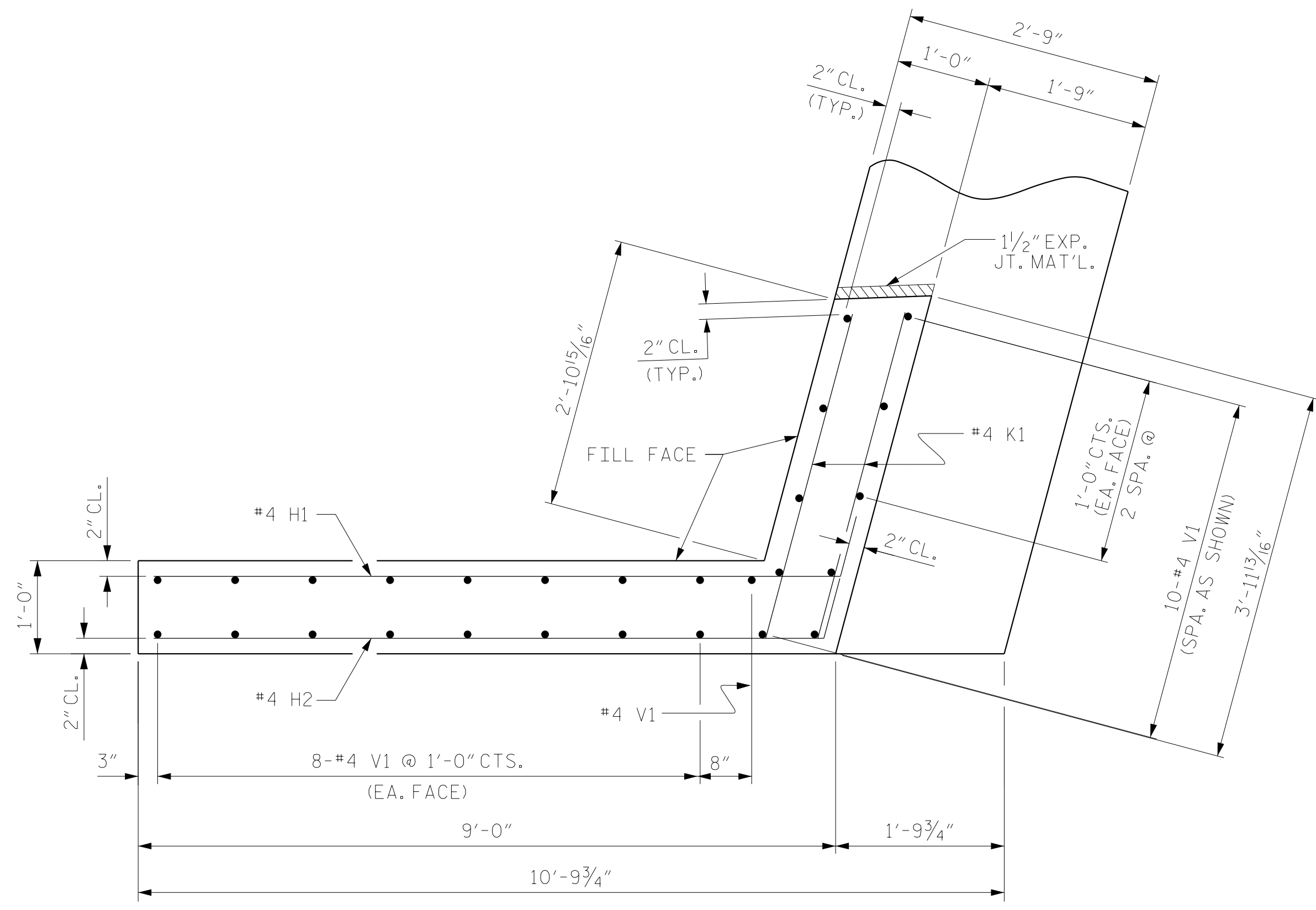
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 919-926-4100 FAX 919-846-9080  
 www.rsandh.com  
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SUBSTRUCTURE END BENT No. 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	PDS	08/2017	3		
2			4		

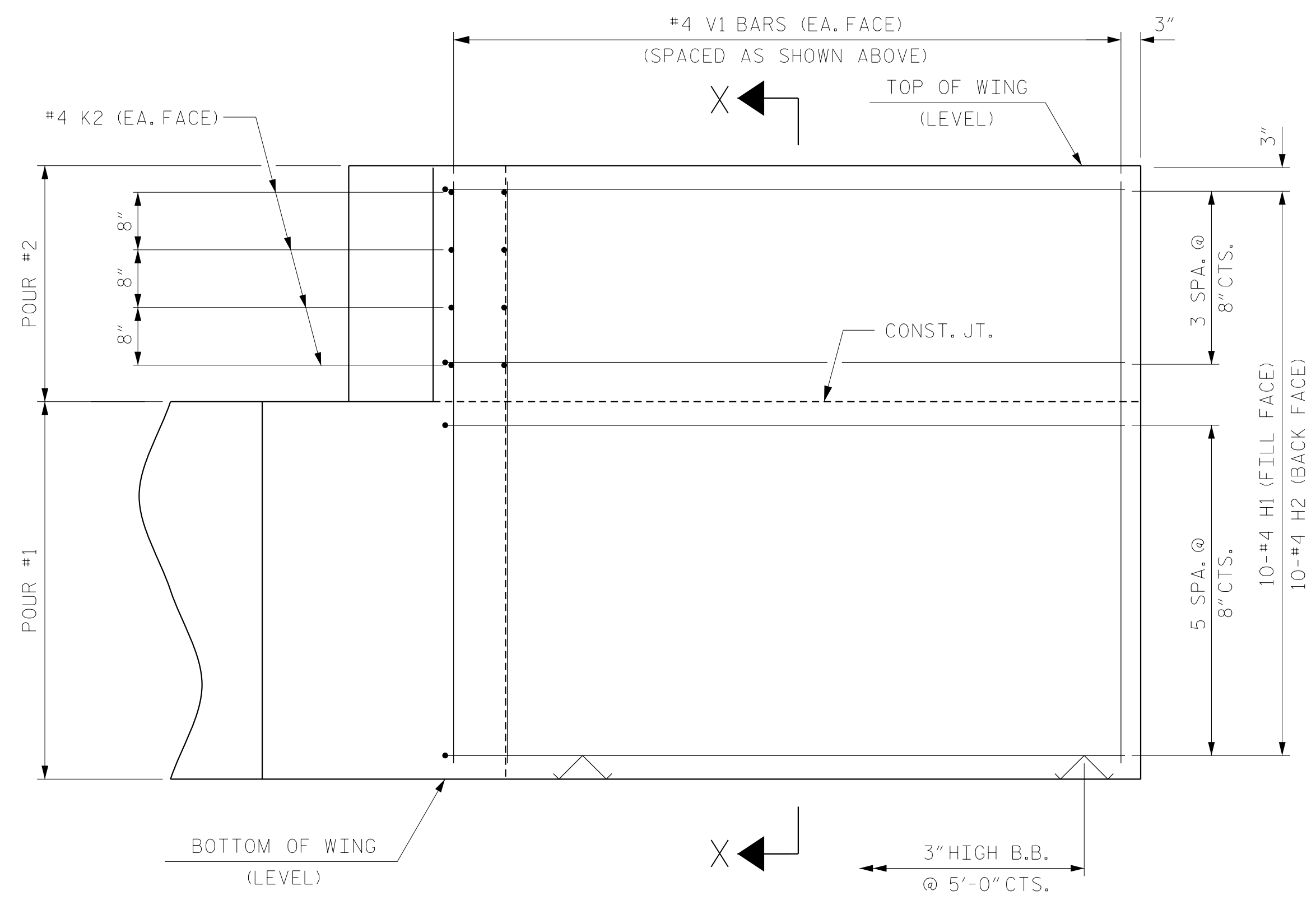
SHEET NO.	
S-16	TOTAL SHEETS 21



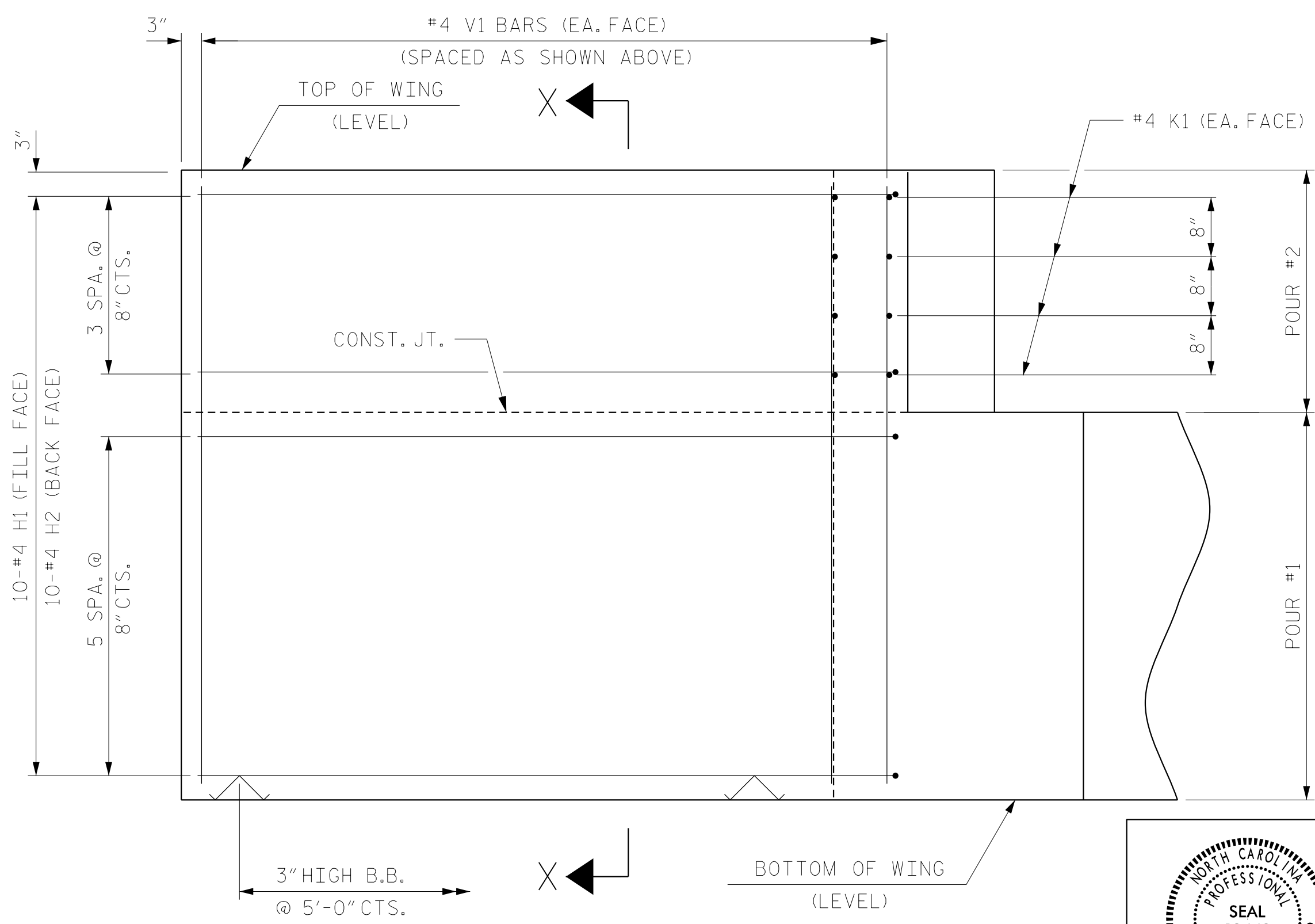
PLAN OF WING (W1)  
STAGE II



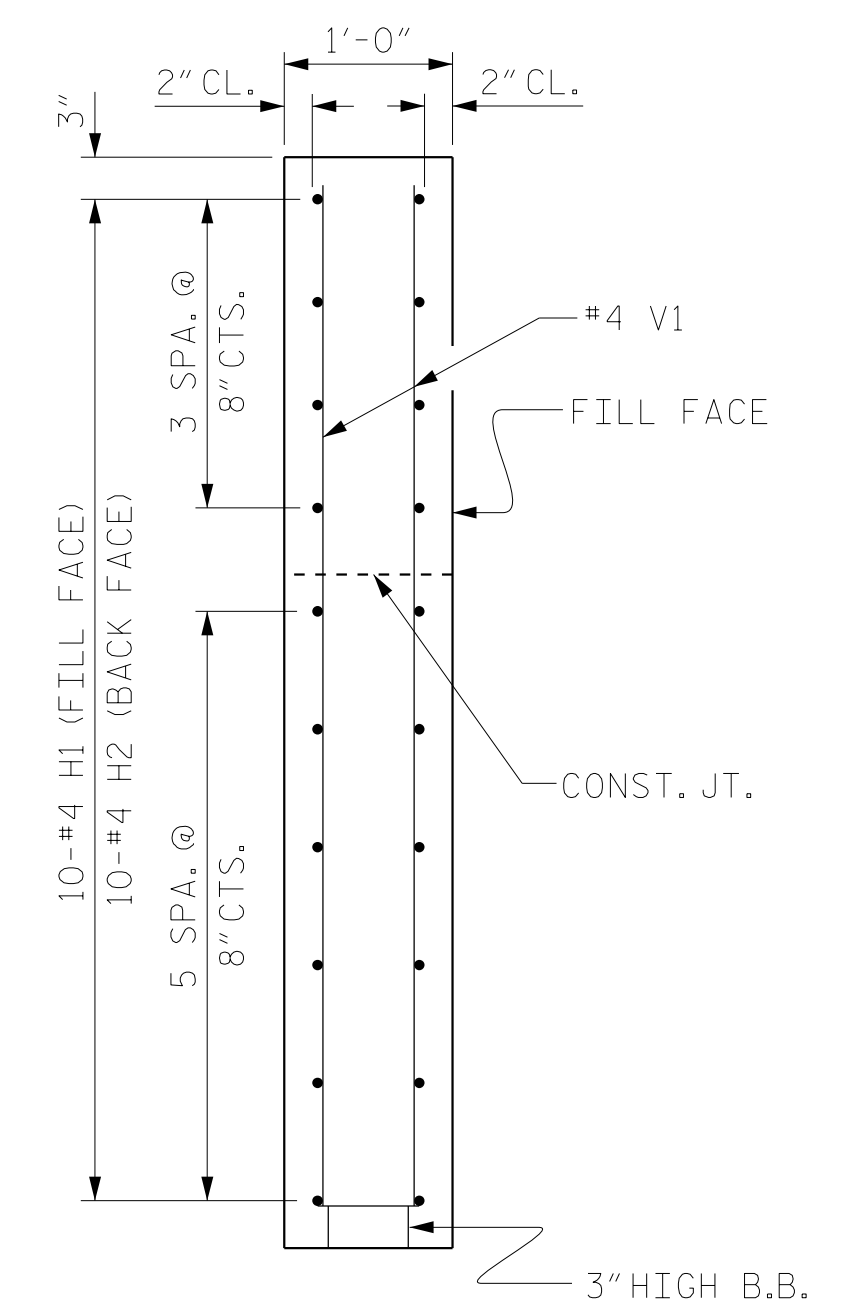
PLAN OF WING (W2)  
STAGE I



ELEVATION OF WING (W1)  
STAGE II



ELEVATION OF WING (W2)  
STAGE I



SECTION X-X

PROJECT NO. 17BP.14.R.118  
TRANSYLVANIA COUNTY  
STATION: 13+03.00 -L-

SHEET 2 OF 3

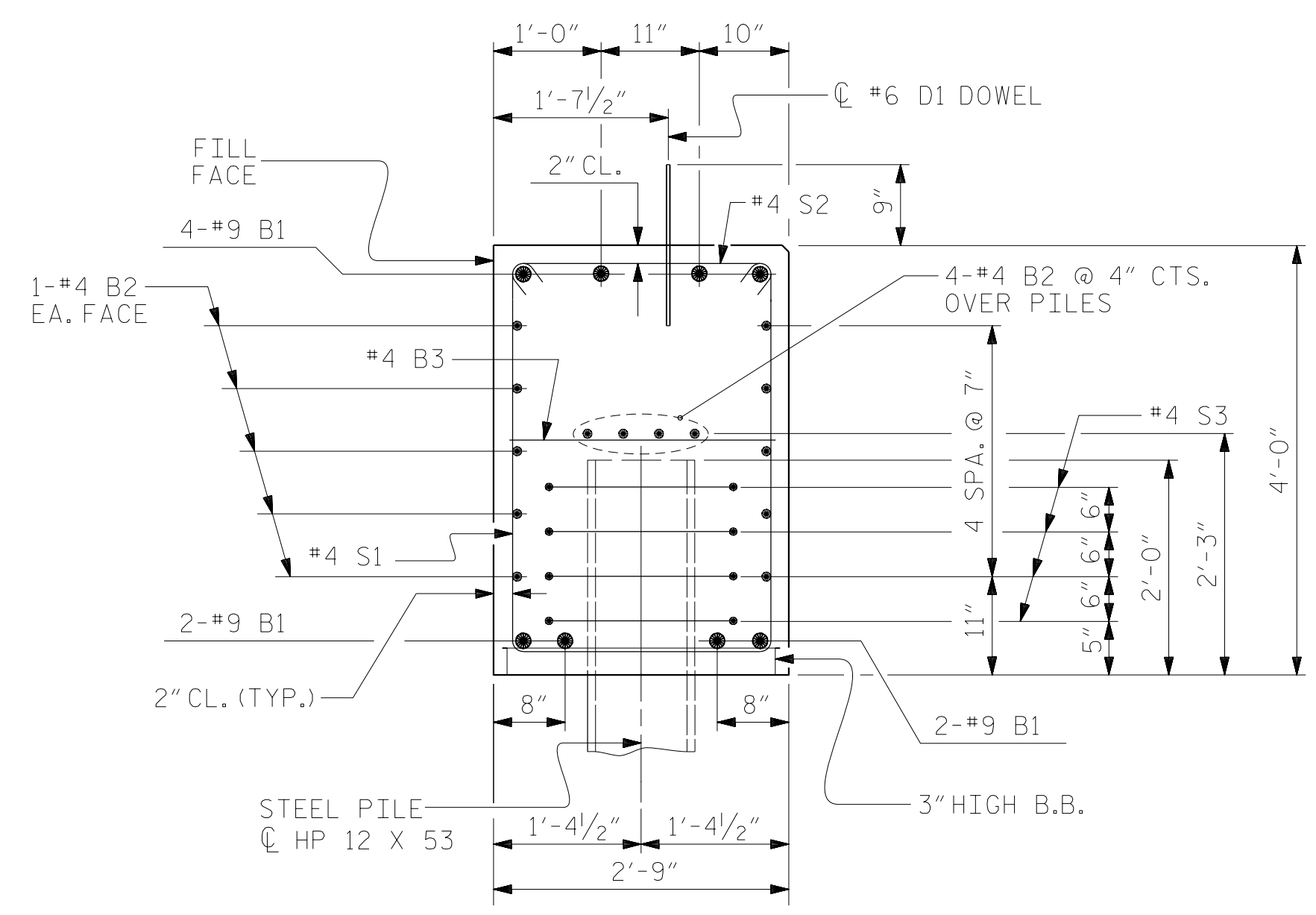
WING DETAILS

ASSEMBLED BY :	TRP	DATE :	05/2014
CHECKED BY :	JMR	DATE :	05/2014
DRAWN BY :	WJH 12/II		
CHECKED BY :	AAC 12/II		

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

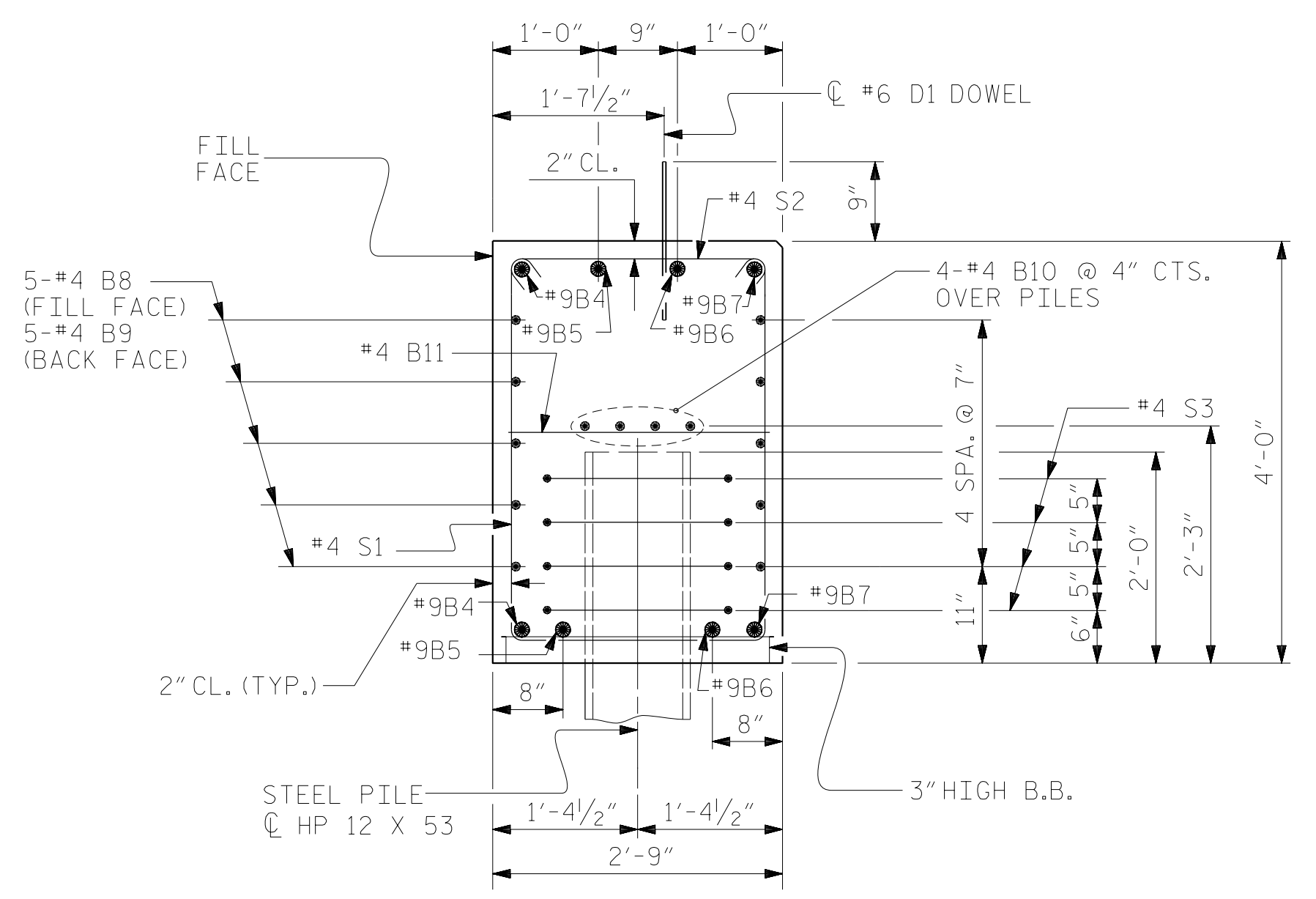
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919-926-4100 FAX 919-846-9080  
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North Carolina License No. 50737-F-0403-1-C-28

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT WING DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1	PDS	08/2017	3		
2			4		
SHEET NO. S-17					TOTAL SHEETS 21



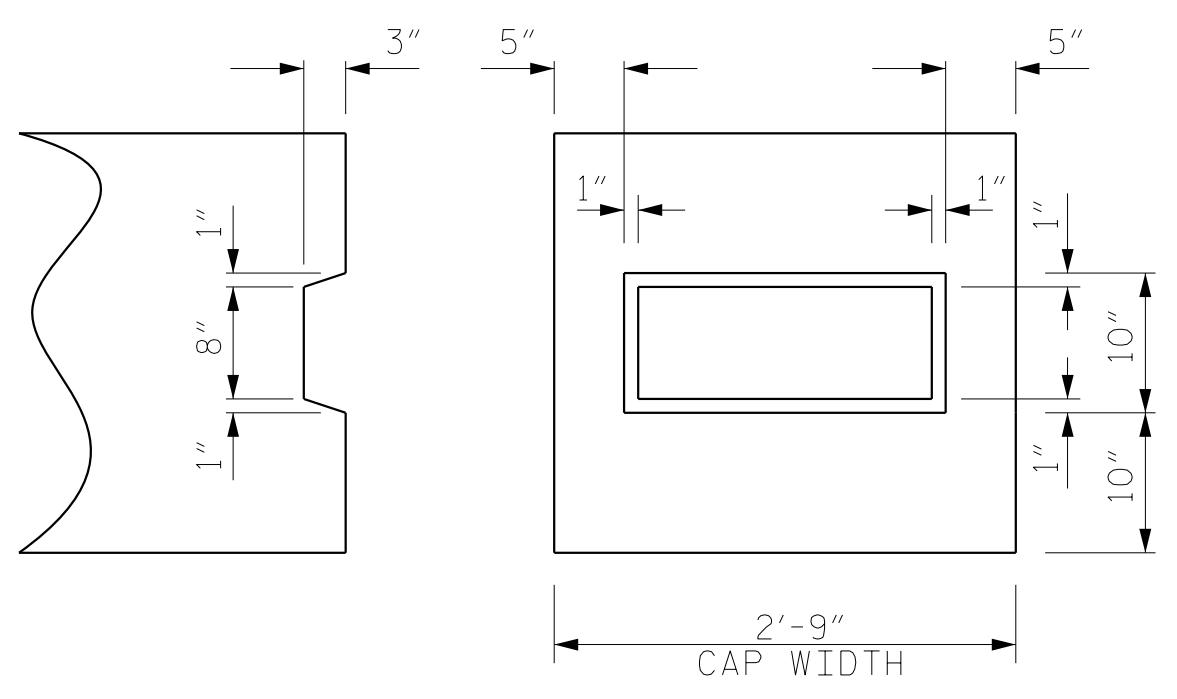
SECTION A-A

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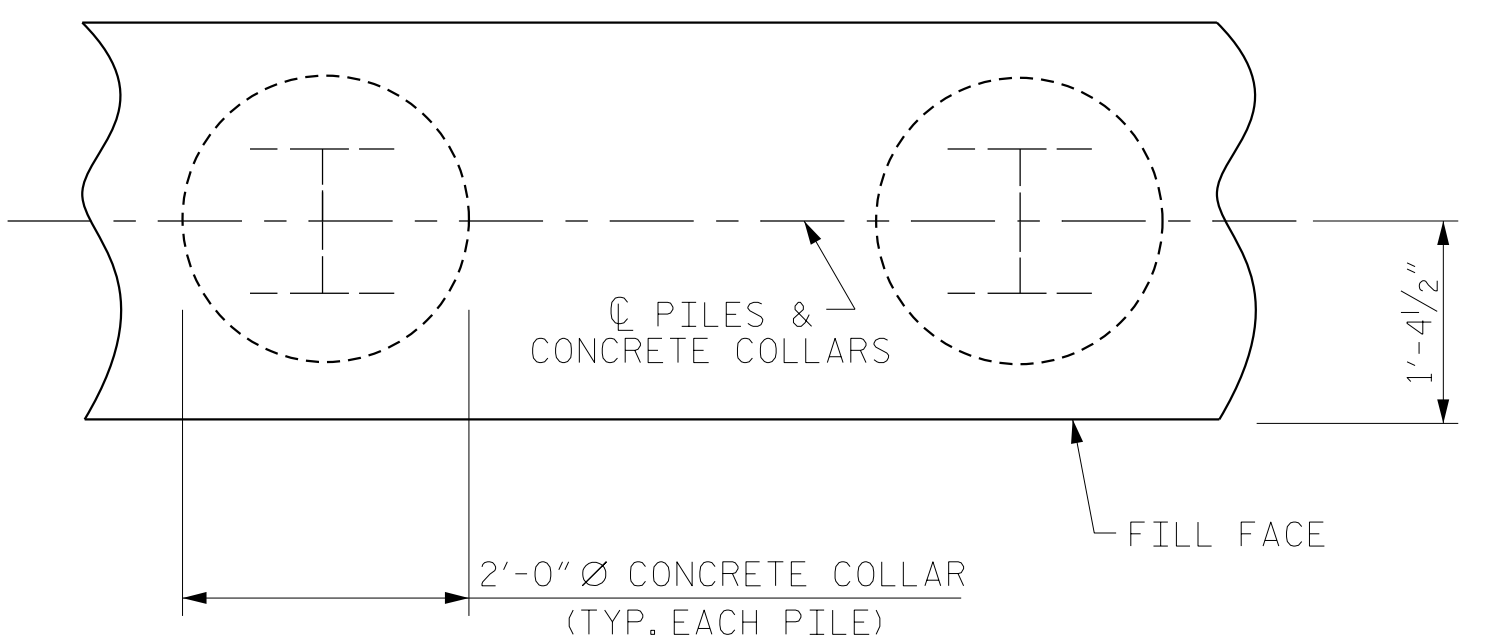


SECTION B-B

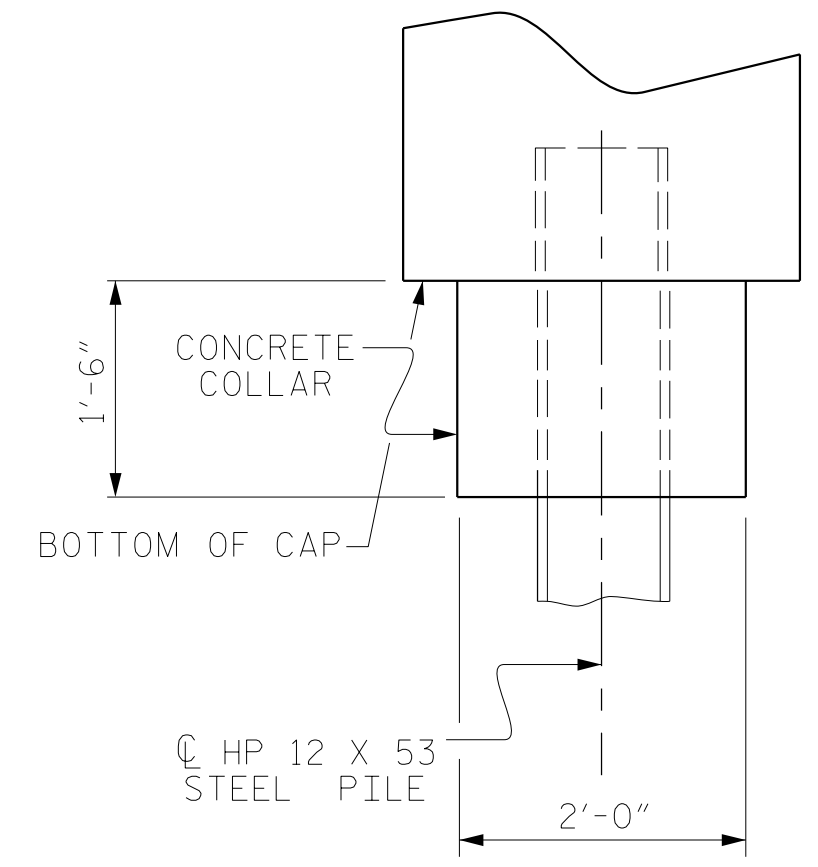
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KEY DETAIL

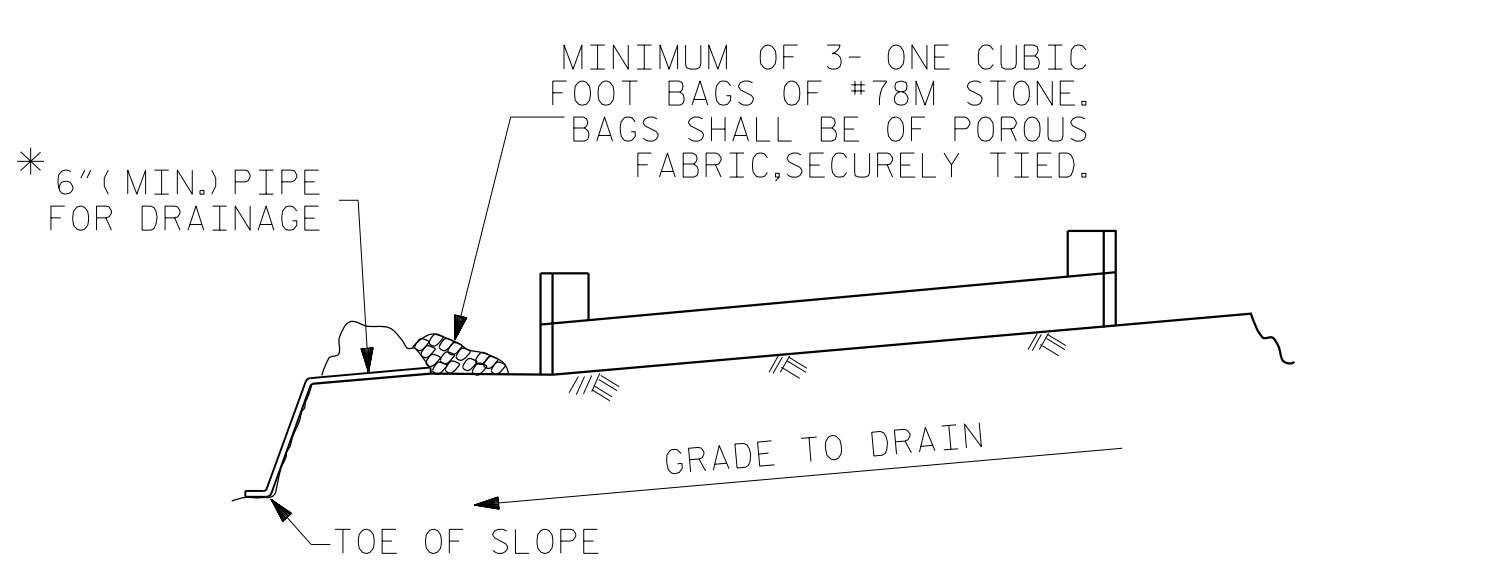


PLAN



ELEVATION

CORROSION PROTECTION FOR STEEL PILES DETAIL



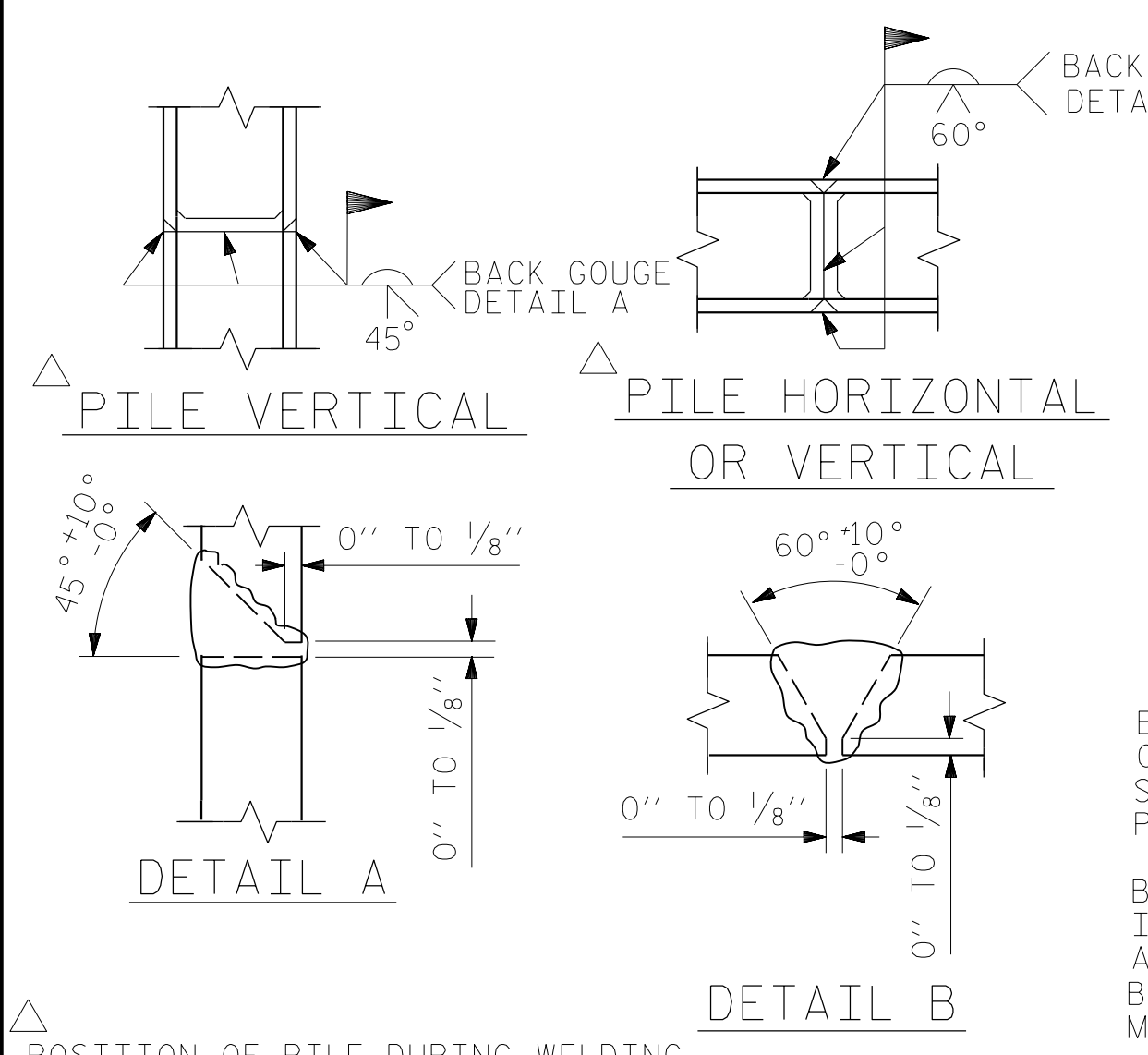
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETEIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

\* MODIFY DRAIN TO RELEASE BETWEEN BRIDGES AND IN FRONT OF END BENTS FOR STAGE 1.

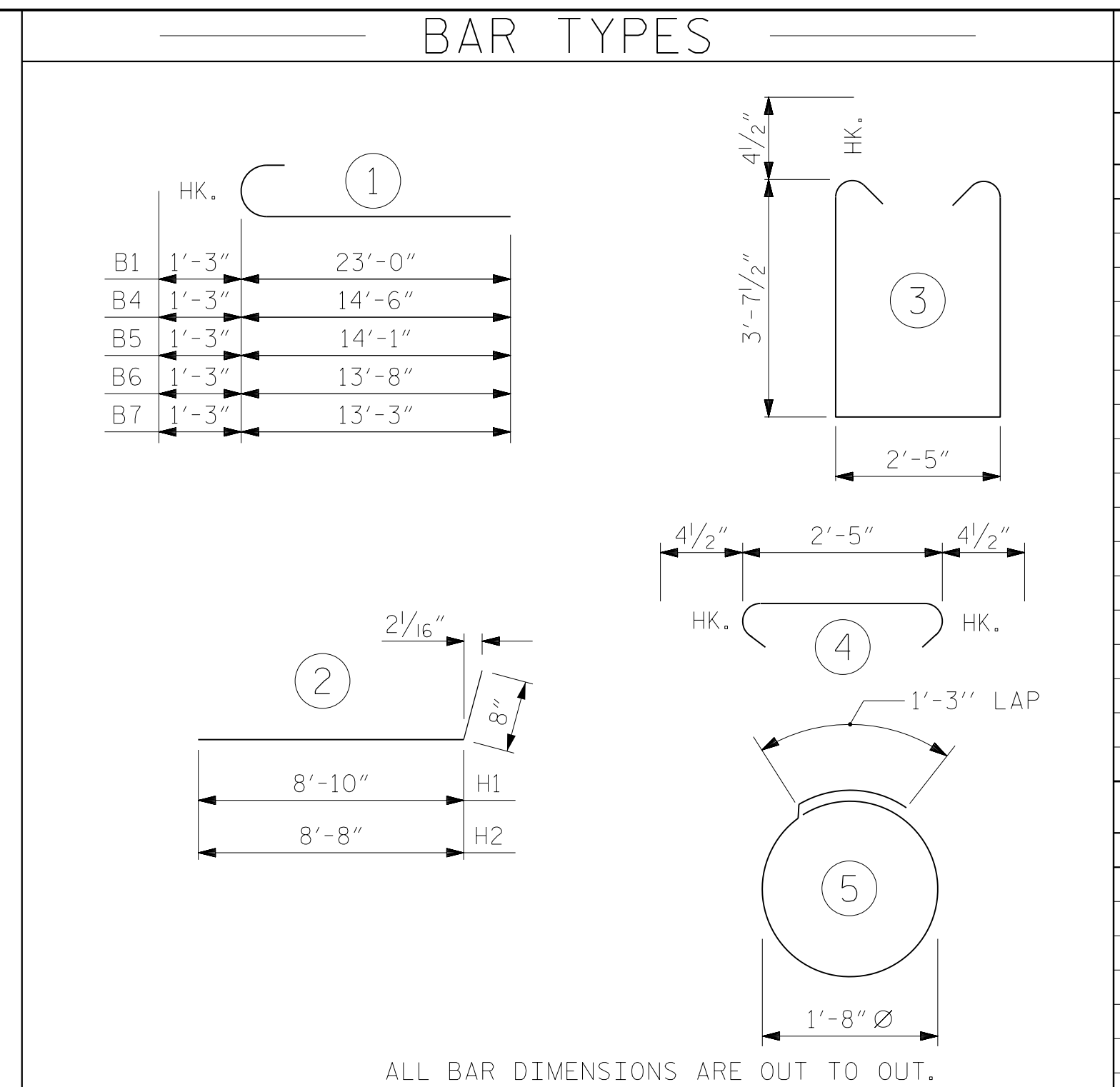
TEMPORARY DRAINAGE AT END BENT



PILE SPLICE DETAILS

POSITION OF PILE DURING WELDING.

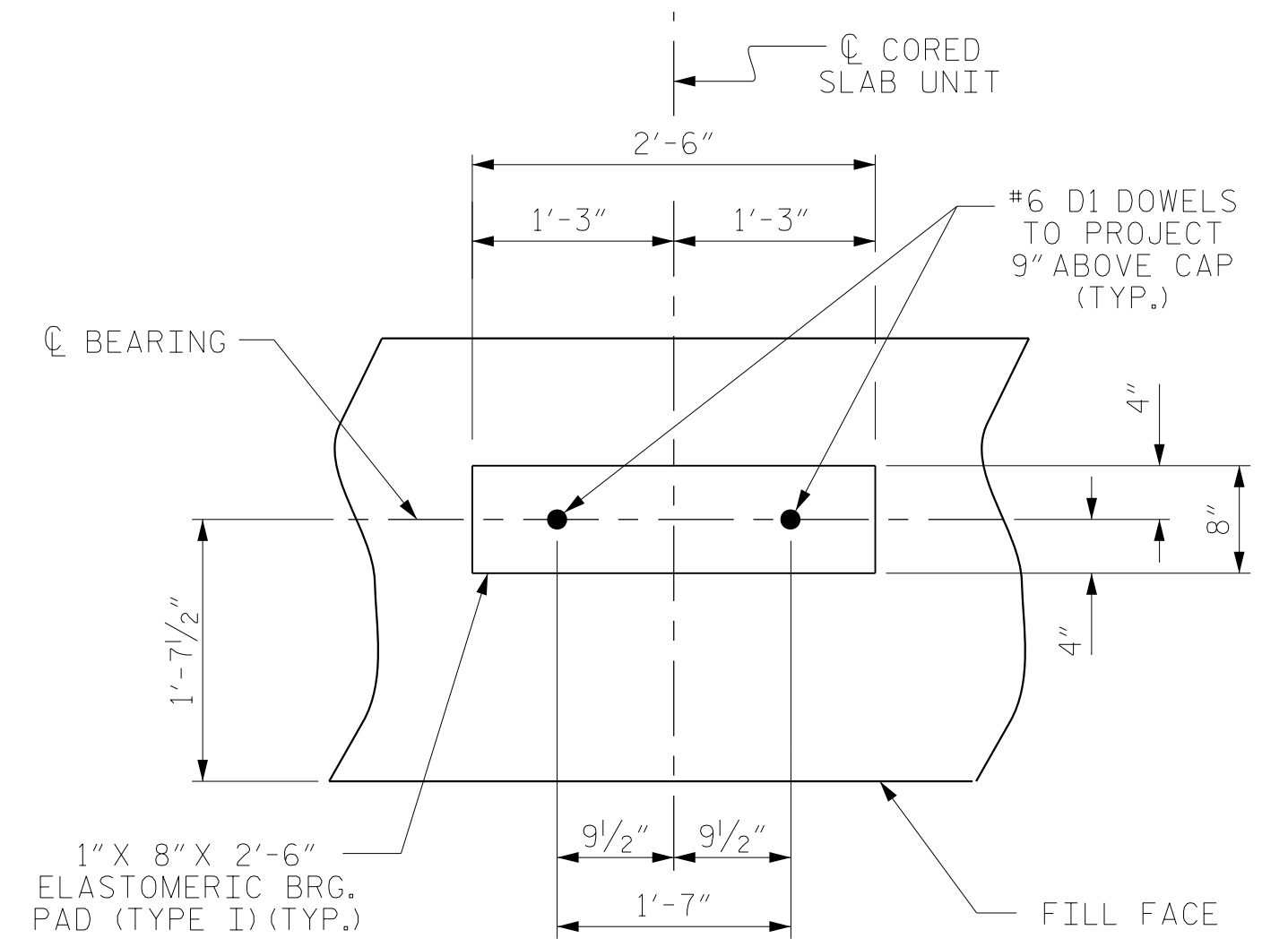
ASSEMBLED BY :	TRP	DATE :	05/2014
CHECKED BY :	JMR	DATE :	05/2014
DRAWN BY :	WJH	12/11	
CHECKED BY :	AAC	12/11	



ALL BAR DIMENSIONS ARE OUT TO OUT.

	STAGE I	STAGE II	TOTAL
REINFORCING STEEL =	1473 LBS.	1035 LBS.	2508 LBS.
CLASS A CONCRETE			
POUR #1 CAP, LOWER PART OF WINGS AND COLLARS	10.7 C.Y.	7.8 C.Y.	18.5 C.Y.
POUR #2 UPPER PART OF WINGS	1.1 C.Y.	1.1 C.Y.	2.2 C.Y.
TOTAL CLASS A CONCRETE	11.8 C.Y.	8.9 C.Y.	20.7 C.Y.
PILE DRIVING EQUIPMENT SETUP	NO. 3	NO. 2	NO. 5
HP 12X53 STEEL PILES	NO. 3 45 LIN. FT	NO. 2 30 LIN. FT	NO. 5 75 LIN. FT
STEEL PILE POINTS	3 EA.	2 EA.	5 EA.
PILE EXCAVATION IN SOIL	9 LIN. FT.	6 LIN. FT.	15 LIN. FT.
PILE EXCAVATION NOT IN SOIL	21 LIN. FT.	14 LIN. FT.	35 LIN. FT.

BILL OF MATERIAL					
END BENT #2					
STAGE I					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	24'-3"	660
B2	14	#4	STR	23'-0"	215
B3	6	#4	STR	2'-5"	10
D1	12	#6	STR	1'-6"	27
H1	10	#4	2	9'-6"	63
H2	10	#4	2	9'-4"	62
K1	8	#4	STR	3'-7"	19
S1	28	#4	3	10'-5"	195
S2	28	#4	4	3'-2"	59
S3	12	#4	5	6'-6"	52
V1	27	#4	STR	6'-2"	111
REINFORCING STEEL =				1473 LBS.	
STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B4	2	#9	1	15'-9"	107
B5	2	#9	1	15'-4"	104
B6	2	#9	1	14'-11"	101
B7	2	#9	1	14'-6"	99
B8	5	#4	STR	14'-6"	48
B9	5	#4	STR	13'-3"	44
B10	4	#4	STR	13'-6"	36
B11	4	#4	STR	2'-5"	6
D1	8	#6	STR	1'-6"	18
H1	10	#4	2	9'-6"	63
H2	10	#4	2	9'-4"	62
K2	8	#4	STR	3'-8"	20
S1	20	#4	3	10'-5"	139
S2	20	#4	4	3'-2"	42
S3	8	#4	5	6'-6"	35
V1	27	#4	STR	6'-2"	111
REINFORCING STEEL =				1035 LBS.	



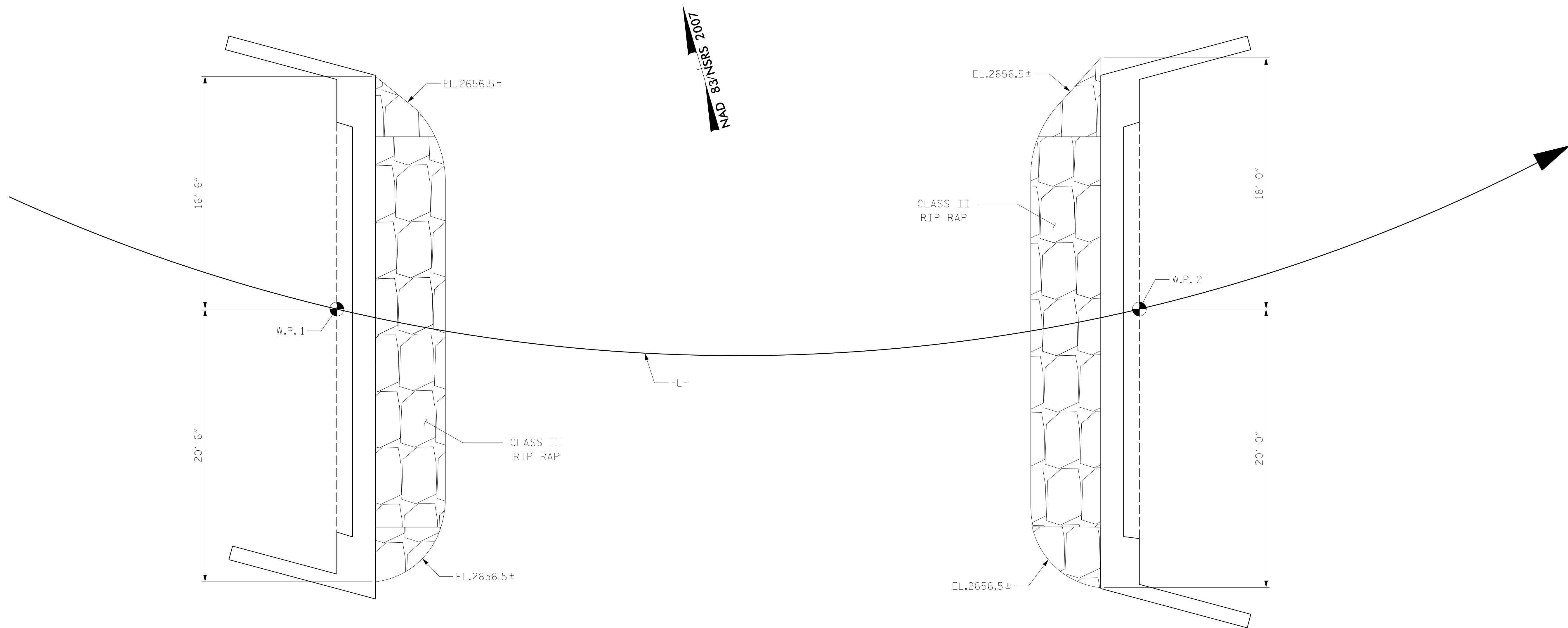
DETAIL "A"

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-  
 SHEET 3 OF 3

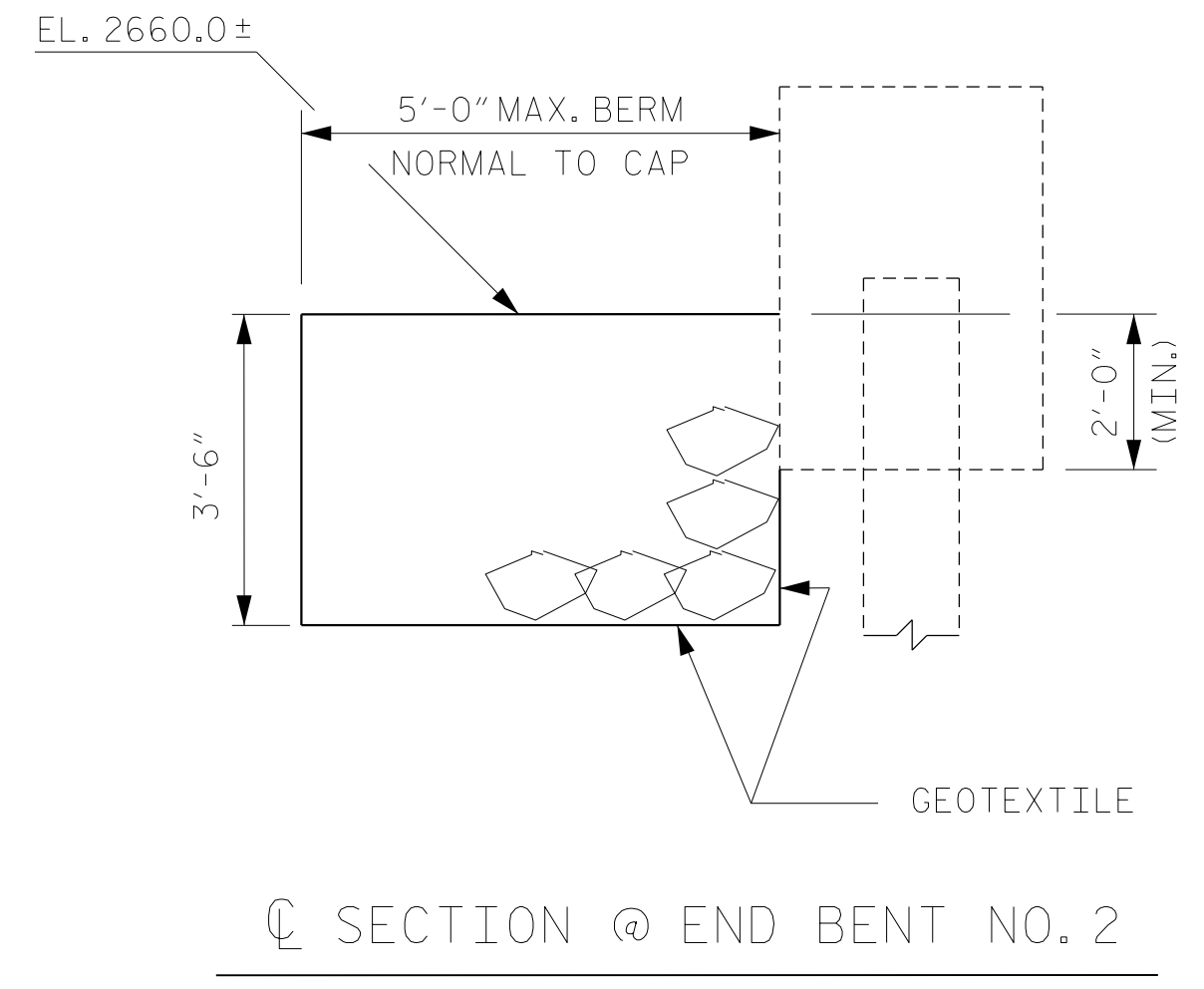
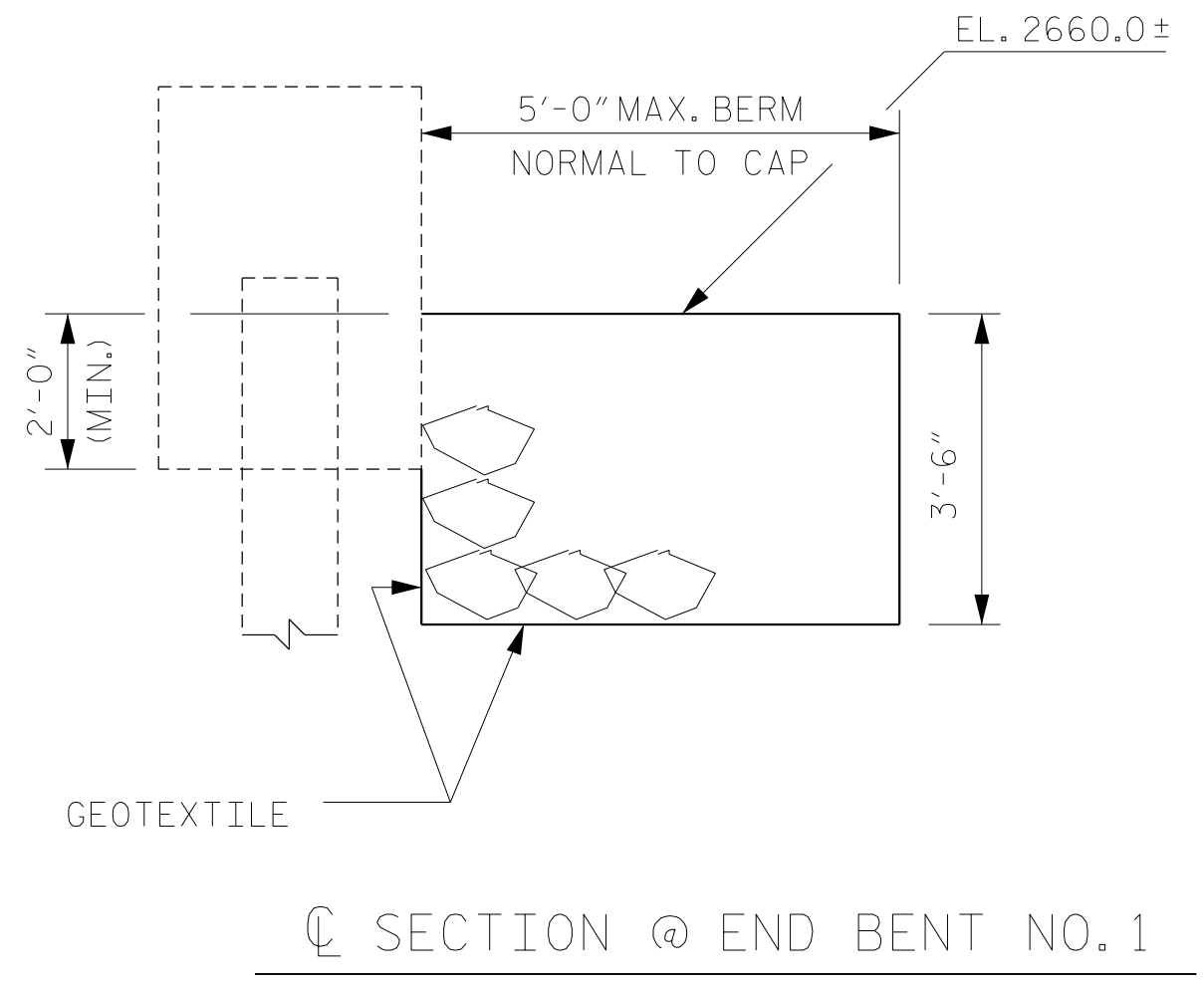
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE					
END BENT No. 2 DETAILS					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. S-18
TOTAL SHEETS 21



PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+03.00 -L-	RIP RAP CLASS II (3'-6" THICK)	GEOTEXTILE FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	38	42.2
END BENT 2	39	43.3



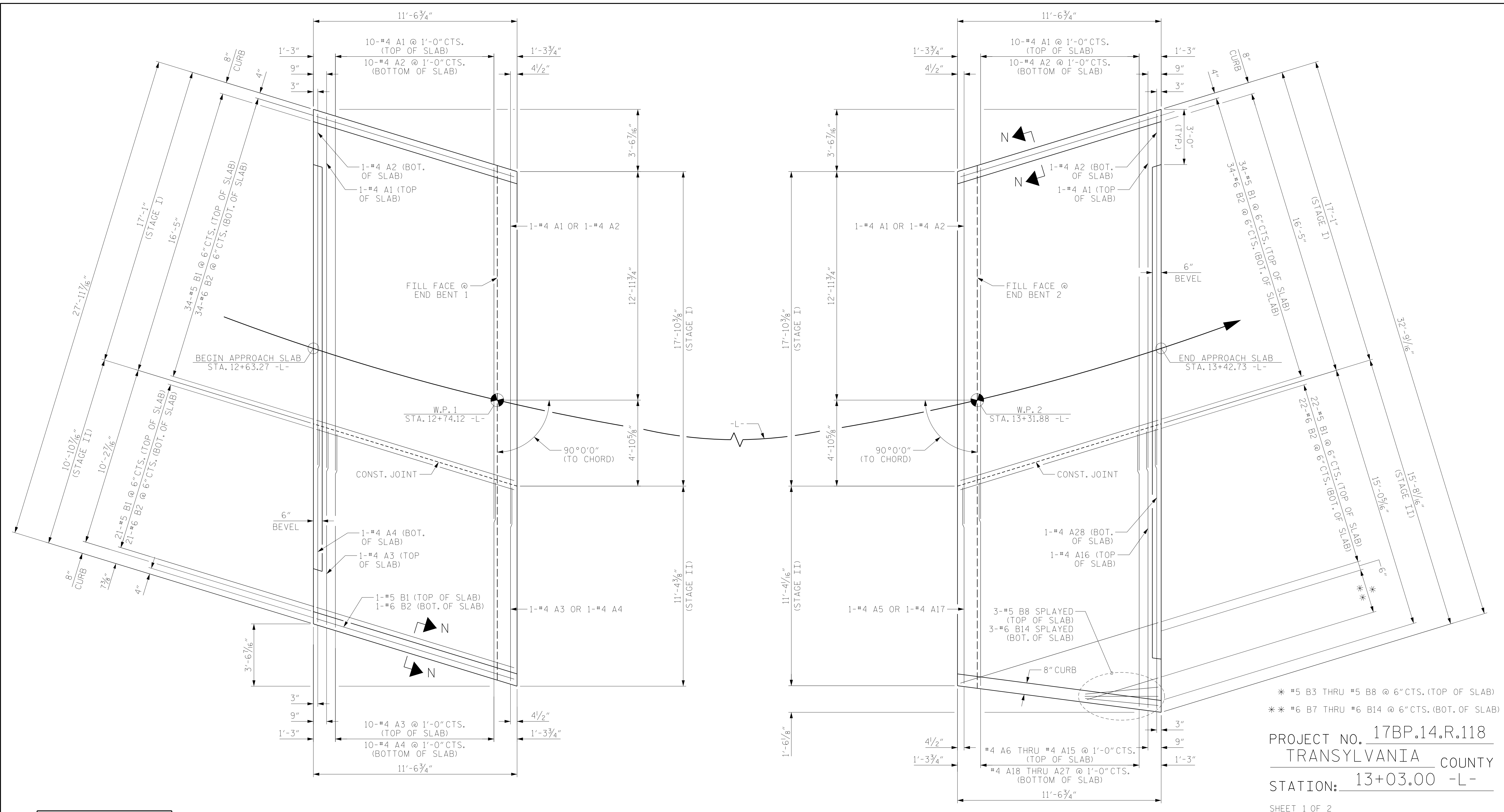
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 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-  
 SHEET 1 OF 1

**RS&H**  
 RS&H Architects-Engineers-Planners, Inc.  
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1			3			TOTAL SHEETS
2			4			21

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PLAN @ END BENT #1

PLAN @ END BENT #2

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	2'-0"	1'-9"
#5	2'-6"	2'-2"
#6	3'-10"	2'-7"

\* #5 B3 THRU #5 B8 @ 6"CTS. (TOP OF SLAB)  
 \*\* #6 B7 THRU #6 B14 @ 6"CTS. (BOT. OF SLAB)

PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-  
 SHEET 1 OF 2



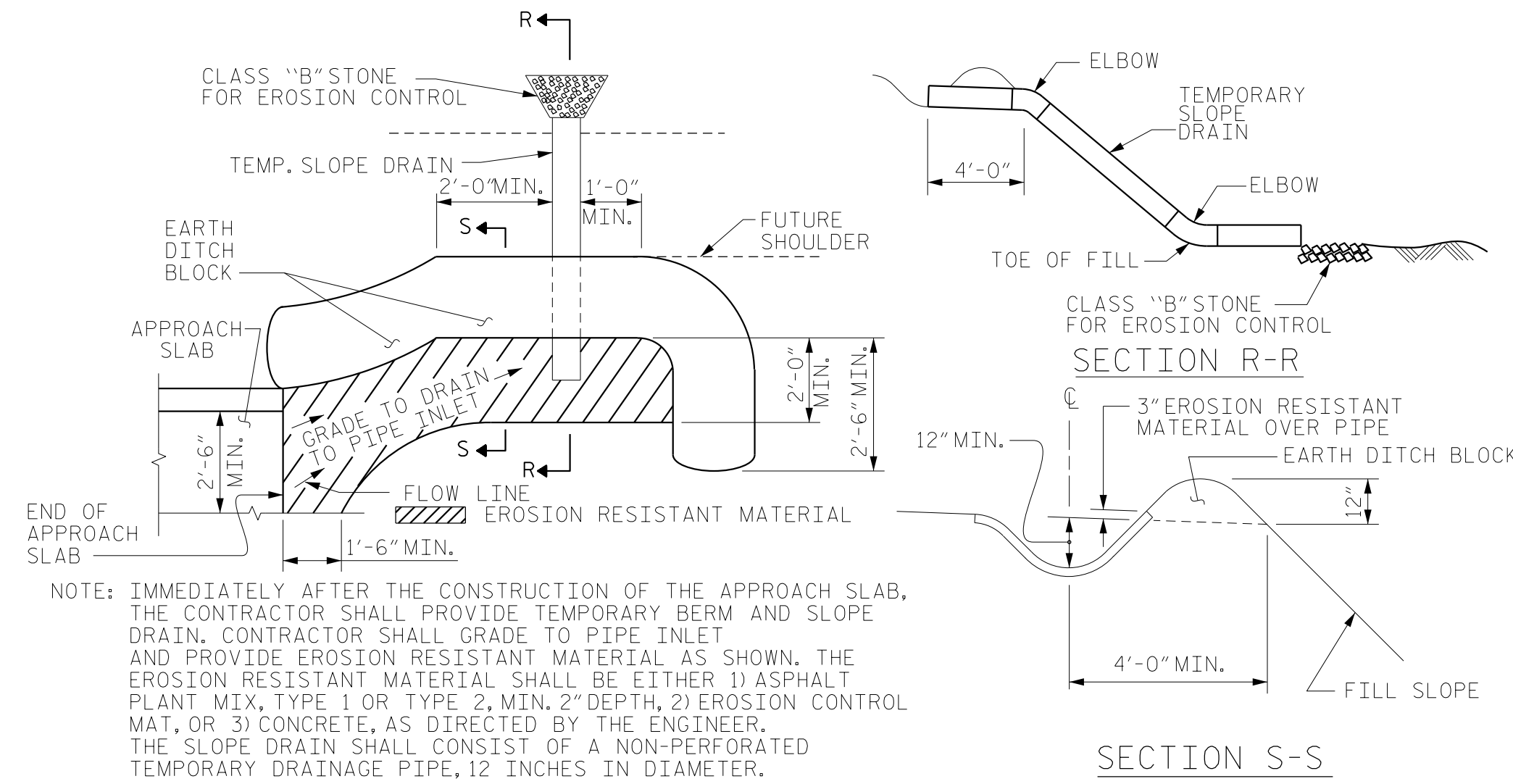
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STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT

DRAWN BY : TRP DATE : 05/2014  
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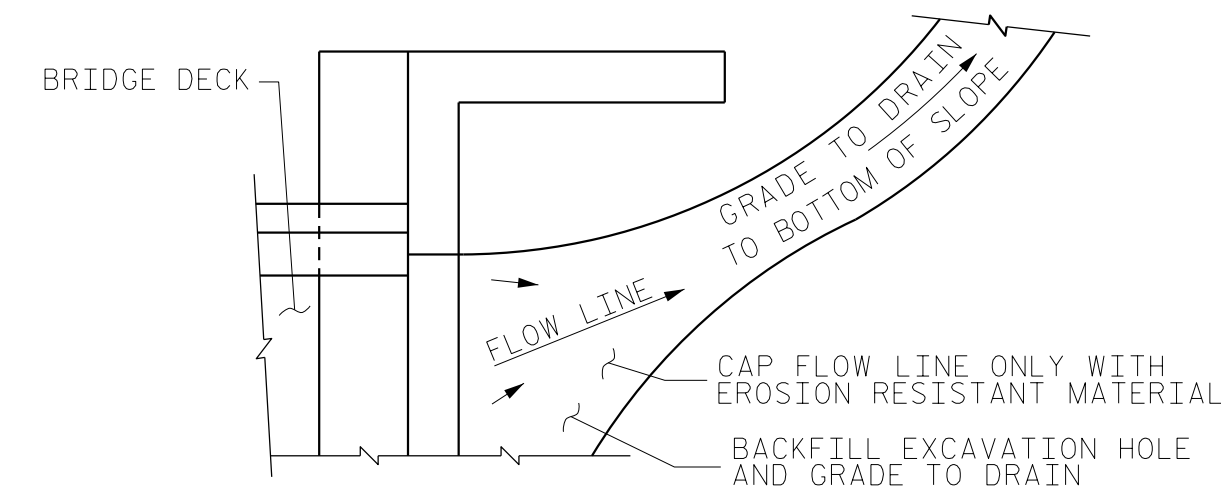


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

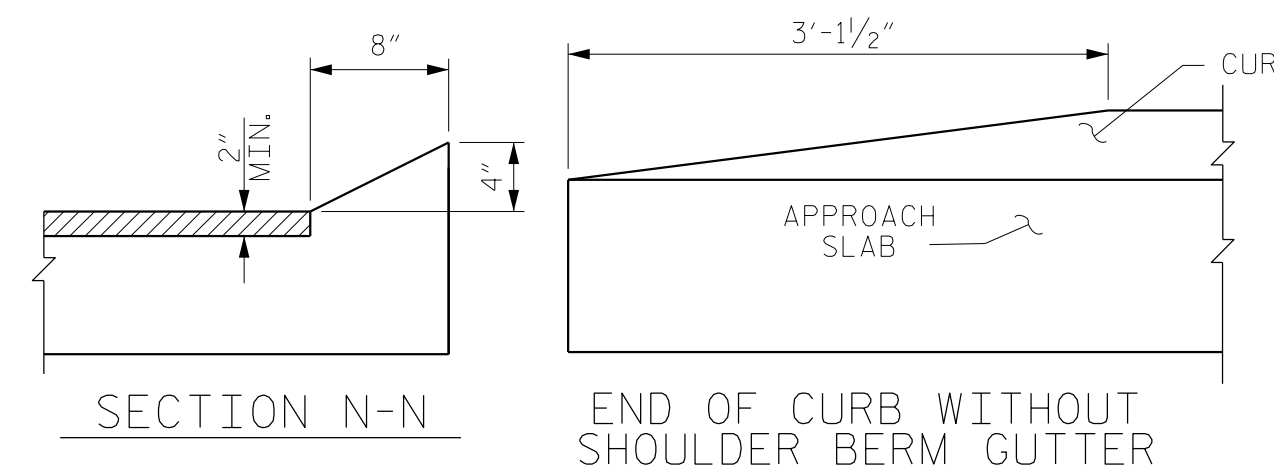
TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

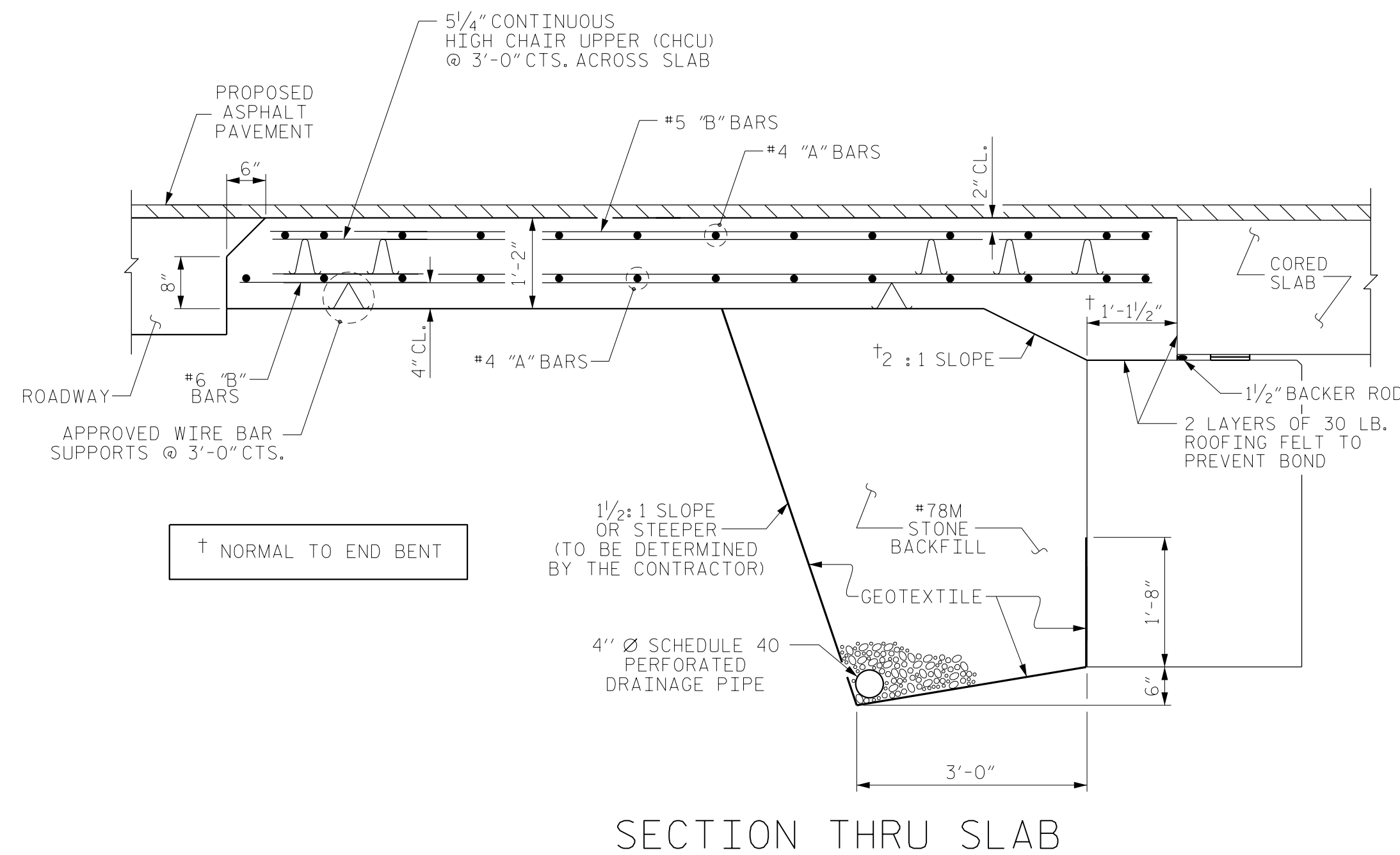


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



CURB DETAILS



SECTION THRU SLAB

NOTES

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY STANDARD PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

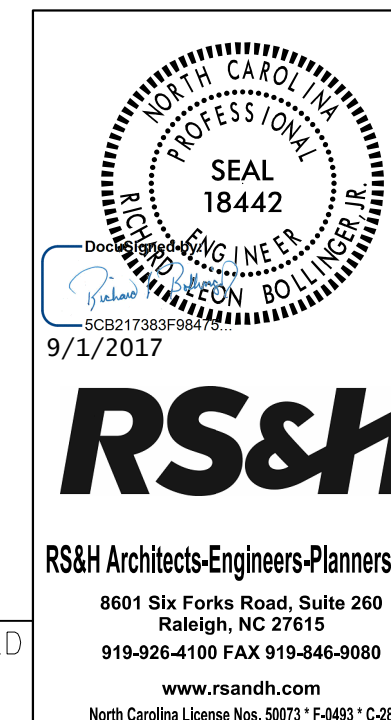
APPROACH SLAB GROOVING IS NOT REQUIRED.

BILL OF MATERIAL

STAGE I												STAGE II											
APPROACH SLAB AT EB #1						APPROACH SLAB AT EB #2						APPROACH SLAB AT EB #1						APPROACH SLAB AT EB #2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	12	#4	STR	19'-9"	158	* A1	12	#4	STR	19'-9"	158	* A3	12	#4	STR	11'-2"	90	* A5	1	#4	STR	11'-4"	8
A2	12	#4	STR	19'-6"	156	A2	12	#4	STR	19'-6"	156	A4	12	#4	STR	11'-2"	90	* A6	1	#4	STR	11'-8"	8
* B1	34	#5	STR	11'-2"	396	* B1	34	#5	STR	11'-2"	396	* B1	22	#5	STR	11'-2"	256	* A7	1	#4	STR	12'-2"	8
B2	34	#6	STR	11'-8"	596	B2	34	#6	STR	11'-8"	596	B2	22	#6	STR	11'-8"	386	* A8	1	#4	STR	12'-7"	8
REINFORCING STEEL						REINFORCING STEEL						REINFORCING STEEL						REINFORCING STEEL					
LBS.						LBS.						LBS.						LBS.					
752						752						476						476					
* EPOXY COATED REINFORCING STEEL						* EPOXY COATED REINFORCING STEEL						* EPOXY COATED REINFORCING STEEL						* EPOXY COATED REINFORCING STEEL					
LBS.						LBS.						LBS.						LBS.					
554						554						346						346					
CLASS AA CONCRETE						CLASS AA CONCRETE						CLASS AA CONCRETE						CLASS AA CONCRETE					
C. Y.						C. Y.						C. Y.						C. Y.					
9.3						9.3						6.0						6.0					
* B1						B2						* B1						B2					
22						22						22						22					
#5						#5						#5						#5					
STR						STR						STR						STR					
11'-2"						11'-2"						11'-2"						11'-2"					
256						256						256						256					
* B2						B2						* B2						B2					
22						22						22						22					
#6						#6						#6						#6					
STR						STR						STR						STR					
11'-8"						11'-8"						11'-8"						11'-8"					
386						386						386						386					
REINFORCING STEEL						REINFORCING STEEL						REINFORCING STEEL						REINFORCING STEEL					
LBS.						LBS.						LBS.						LBS.					
581						581						581						581					
* EPOXY COATED REINFORCING STEEL						* EPOXY COATED REINFORCING STEEL						* EPOXY COATED REINFORCING STEEL						* EPOXY COATED REINFORCING STEEL					
LBS.						LBS.						LBS.						LBS.					
422						422						422						422					
CLASS AA CONCRETE						CLASS AA CONCRETE						CLASS AA CONCRETE						CLASS AA CONCRETE					
C. Y.						C. Y.						C. Y.						C. Y.					
7.2						7.2						7.2						7.2					

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PROJECT NO. 17BP.14.R.118  
 TRANSYLVANIA COUNTY  
 STATION: 13+03.00 -L-  
 SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 BRIDGE APPROACH SLAB DETAILS  
 FOR PRESTRESSED CONCRETE  
 CORED SLAB UNIT  
 (SUB-REGIONAL TIER)  
 120° SKEW

REVISIONS						SHEET NO.	
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## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	- -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	- - - - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

### SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

# ENGLISH

JANUARY, 1990

STD. NO. SN